



# **Developing a Common Science Framework for the Integrated Rangeland Fire Strategy & Mitigation Strategies**

***To aid prioritization of conservation and  
restoration activities  
in the sagebrush ecosystem***



February 26, 2016



```
graph LR; A[Values and Risks] --> B[Science Framework]; B --> C[Identify conservation & restoration opportunities]; C --> D[Prioritize and Plan];
```

Values  
and  
Risks

Science  
Framework

Identify  
conservation  
& restoration  
opportunities

Prioritize  
and  
Plan



THE SECRETARY OF THE INTERIOR  
WASHINGTON

ORDER NO. 3336

Subject: Rangeland Fire Prevention, Management and Restoration

**Sec. 1 Purpose.** This Order sets forth enhanced policies and strategies for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the West. These actions are essential for conserving habitat for the greater sage-grouse as well as other wildlife species and economic activity, such as ranching and recreation, associated with the sagebrush-steppe ecosystem in the Great Basin region. This effort will build upon the experience and success of addressing rangeland fire, and broader wildland fire prevention, suppression and restoration efforts to date, including the National Cohesive Wildland Fire Management Strategy, and ensure improved coordination with local, state, tribal, and regional efforts to address the threat of rangeland fire at a landscape-level.

**Sec. 2 Background.** The Department of the Interior is entrusted with overseeing the management of Federal lands for the benefit of current and future generations as well as the protection and recovery of imperiled species of flora and fauna and the ecosystems upon which they depend. Rangeland fires in the Great Basin of the Western United States have increased in size and intensity in recent years. The accelerated invasion of non-native annual grasses, in particular cheatgrass and medushead rye, and the spread of piñon-juniper across the sagebrush-steppe ecosystem, along with drought and the effects of climate change, have created conditions that have led to the increased threat of rangeland fires to the sagebrush landscape and the more than 350 species of plants and animals, such as mule deer and pronghorn antelope, that rely on this critically important ecosystem. As a result, the increasing frequency and intensity of rangeland fire also poses a significant threat to ranchers, livestock managers, sportsmen, and outdoor recreation enthusiasts who use the sagebrush-steppe ecosystem, and puts at risk their associated economic contributions across this landscape that support and maintain the American way of life in the West.

In 2010, the U.S. Fish and Wildlife Service (USFWS) found that the invasion of annual grasses and the loss of habitat from fire in the Great Basin is a significant threat to the greater sage-grouse in that portion of its remaining range. The USFWS is now considering whether protections under the Endangered Species Act are warranted. In response to this finding, the Bureau of Land Management (BLM) and the U.S. Forest Service are currently undertaking land use plan revisions and amendments to incorporate appropriate conservation measures to conserve, enhance, and restore greater sage-grouse habitat by reducing, eliminating, or minimizing threats to that habitat. More targeted actions to reduce the likelihood and severity of fire, to stem the spread of invasive species, and to restore the health and resilience of the landscape are necessary to preserve, protect, and restore greater sage-grouse habitat in the sagebrush-steppe ecosystem, and address important public safety, economic, cultural, and social concerns. This includes enhanced coordination and collaboration with partners and stakeholders, including rangeland fire protection associations.

**Sec. 3 Authorities.** This Order is issued under the authority of Section 2 of Reorganization Plan No. 3 of 1950 (64 Stat.1262), as amended. Other statutory authorities related to this Order include




# AN INTEGRATED RANGELAND FIRE MANAGEMENT STRATEGY



*Final Report to the Secretary of the Interior*

*May 2015*



## SO 3336: Section 7b (iv) Integrate Science into Project Design & Implementation

- ▶ Action Item 1 – Consider emerging science, particularly ecological resistance and resilience, in habitat management, fuels treatment, and restoration projects.
- ▶ Action Item 2 - Identify priority actions for conservation and restoration.



## SO 3336: Section 7b (vi)

Commit to multi-year investments for the restoration of sagebrush ecosystems,

including consistent, long-term monitoring protocols

and adaptive management for restored areas



# Mitigation Strategies for Greater Sage Grouse

- ▶ Required in the Records of Decision,  
signed 9/22/15
  - ▶ Due 9/22/16
- 



# What are the Common Science Framework and Conservation & Restoration Strategy?

*The Common Science Framework provides a holistic, science-based foundation for assessing resource values and threats across scales in the sagebrush biome*

- Provides clear linkages among SO efforts
- Guides the development of scientific information and prioritization tools

*The C&R Strategy will -*

- Informs budget prioritization and adaptive management
- Provides options for management activities across scales

# The Road Forward-Mitigation

Greater Sage Grouse Values & threats

COMMON Science Framework

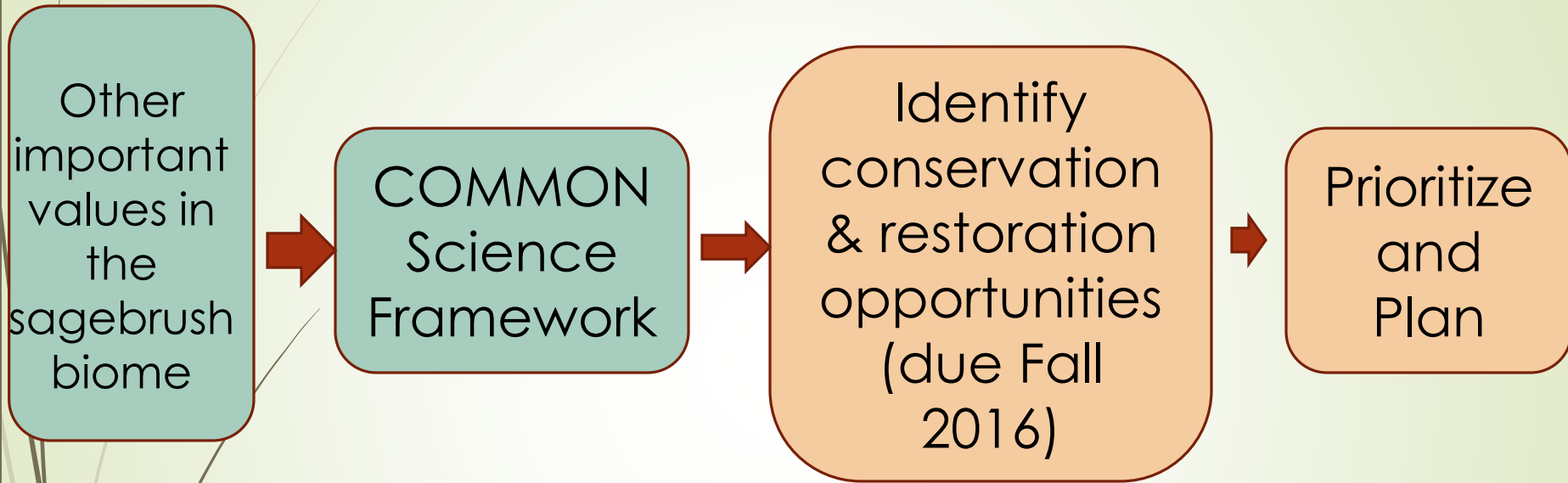
Identify conservation & restoration opportunities (due 7/1/16)

Prioritize and Plan

It will be provided to federal and state teams that are developing mitigation strategies, which are due 9/22/16.



# The Road Forward- IRFS



We will need assistance identifying additional values and data layers for those values.

This information will be used to develop multi-year programs of work for conservation and restoration investments in the sagebrush biome.



# Purpose of Meeting

- Introduce the Common Science Framework, which is one component of the Conservation & Restoration (C&R Strategy) and is a requirement of the Integrated Rangeland Fire Strategy (IRFS).
- Discuss linkages to the mitigation strategies required in the sage-grouse RODs
- Illustrate current and planned connections between the Science Framework and Geospatial Tool and Landscape Approach Data Portal
- Obtain Feedback and invite participation

# We will ask for your help



1. Please keep me informed on the progress.
2. I would like to roll up my sleeves and attend the work meeting(s) and or contribute data.
3. I would like to test out the science framework and make sure its useful to managers.



# Building the Bridges

The Value of a Common Science Framework



# The Common Science Framework

# What is the Scope?

*The Science Framework will be designed to address a variety of resources and values*

- ▶ First Version - sagebrush ecosystems and greater sage-grouse populations
  - WAFWA, FIAT, and SMRRT
- ▶ Subsequent versions -
  - Greater sage-grouse brood rearing habitat, riparian areas, and cultural values
  - Big game migratory corridors & seasonal habitat
  - At-risk species
  - Other

# What is the Scope?

## ***Threats to Sagebrush Ecosystems***

- Threats identified for sage-grouse are the same for all sagebrush obligate species and ecosystems
- Species population and direct habitat threats
  - Persistent ecosystem threats
  - Anthropogenic threats
- Climate change

(USFWS 2013 Conservation Objectives Team Report – Table 2)

Threats
Isolated/Small Population Size
Sagebrush Elimination
Wildfire
Conifer Expansion
Weeds/Invasive Grasses
Agricultural Conversion
Energy Development
Mining
Infrastructure
Improper Livestock Grazing
Free-Roaming Equids
Recreation
Urbanization
Climate Change



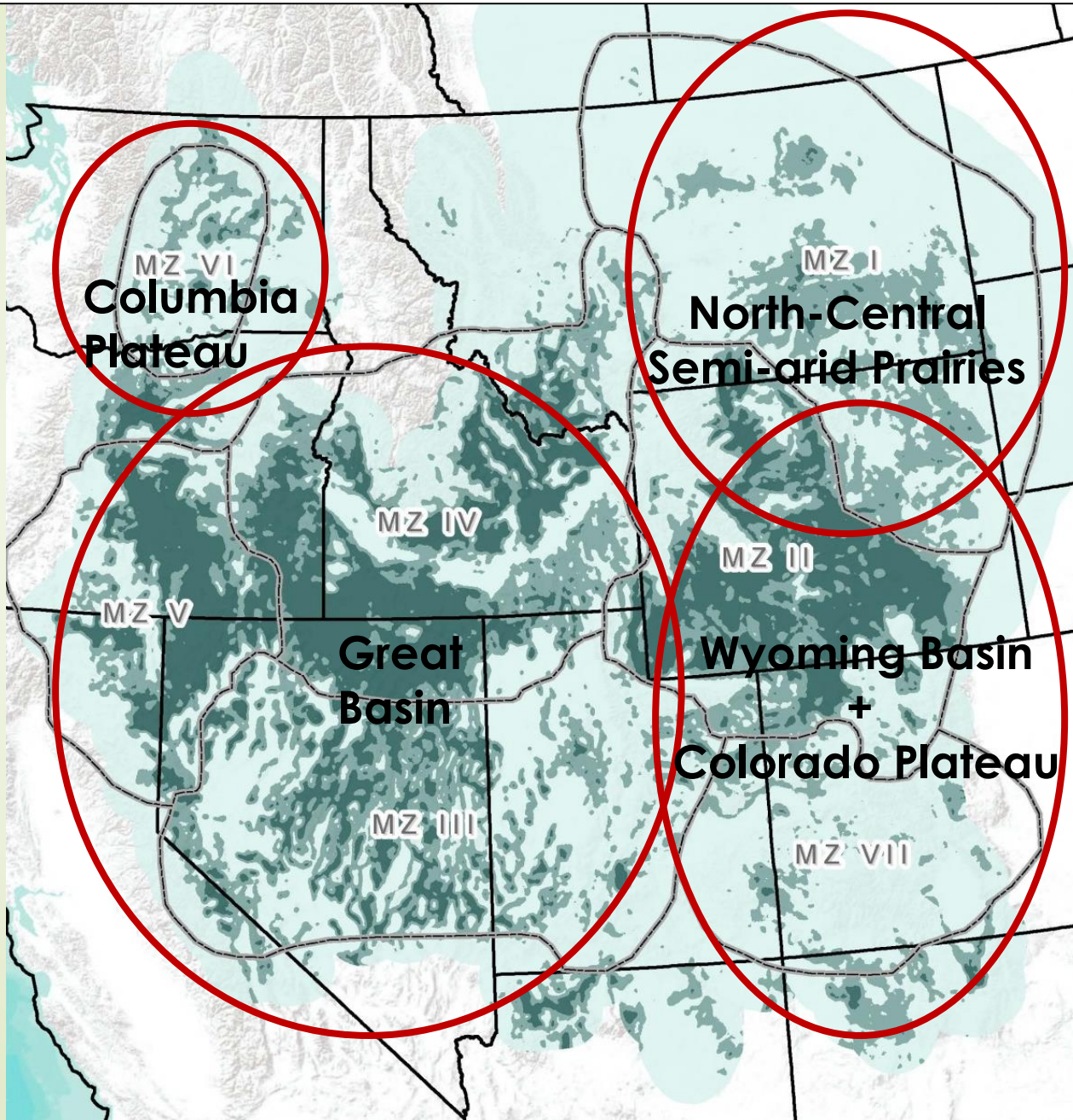
# What is the Scope?

## ***Sagebrush Biome***

- ▶ Sage-Grouse Management Zones (I through VII)
- ▶ Cross-walk to EPA Level II or III Ecoregions



# Sagebrush Biome and Management Zones



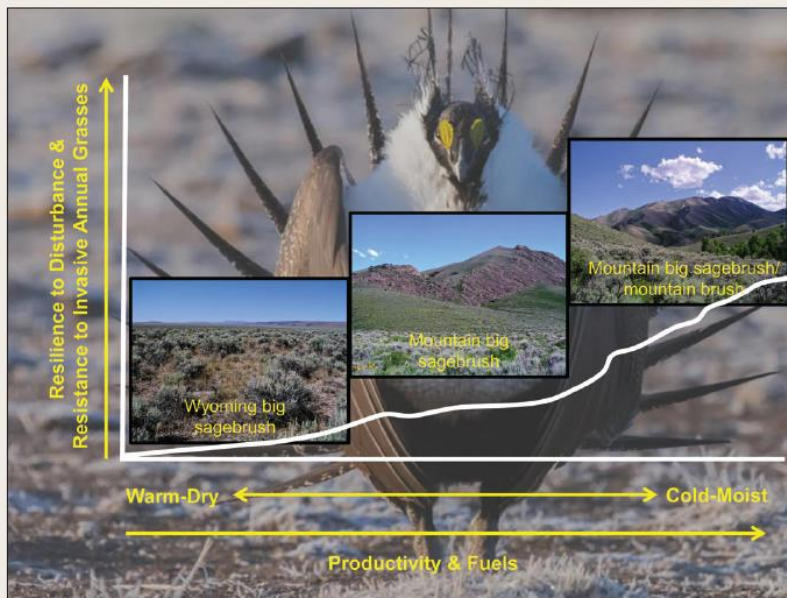
# The Science Basis - Resilience and Resistance



United States Department of Agriculture

## Using Resistance and Resilience Concepts to Reduce Impacts of Invasive Annual Grasses and Altered Fire Regimes on the Sagebrush Ecosystem and Greater Sage-Grouse: A Strategic Multi-Scale Approach

Jeanne C. Chambers, David A. Pyke, Jeremy D. Maestas, Mike Pellant, Chad S. Boyd, Steven B. Campbell, Shawn Espinosa, Douglas W. Havlina, Kenneth E. Mayer, and Amarina Wuenschel



## WAFWA Fire and Invasives Working Group —

- Developed scientific basis to
  - Prioritize areas for management in western portion of range
  - Determine best management strategies at local scales
- Incorporated approach into
  - Subregional EISs
  - BLM IM 2014-134 (FIAT)
  - DOI SO 3336 (Rangeland Fire Prevention, Management & Restoration -1/2015)
- Developing similar approach for eastern portion of range (SMRRT)



Forest Service

Rocky Mountain Research Station

General Technical Report RMRS-GTR-326

September 2014



# A Strategic, Multi-Scale Approach

- Scalable – Landscape to Site
  - 1) Develop an understanding of ecosystem resilience and resistance for the planning region
  - 2) Identify focal species (resources) and key habitat indicators
  - 3) Develop management decision matrices
  - 4) Assess key threats
  - 5) Delineate focal habitats/areas for management
  - 6) Determine the most appropriate management approach

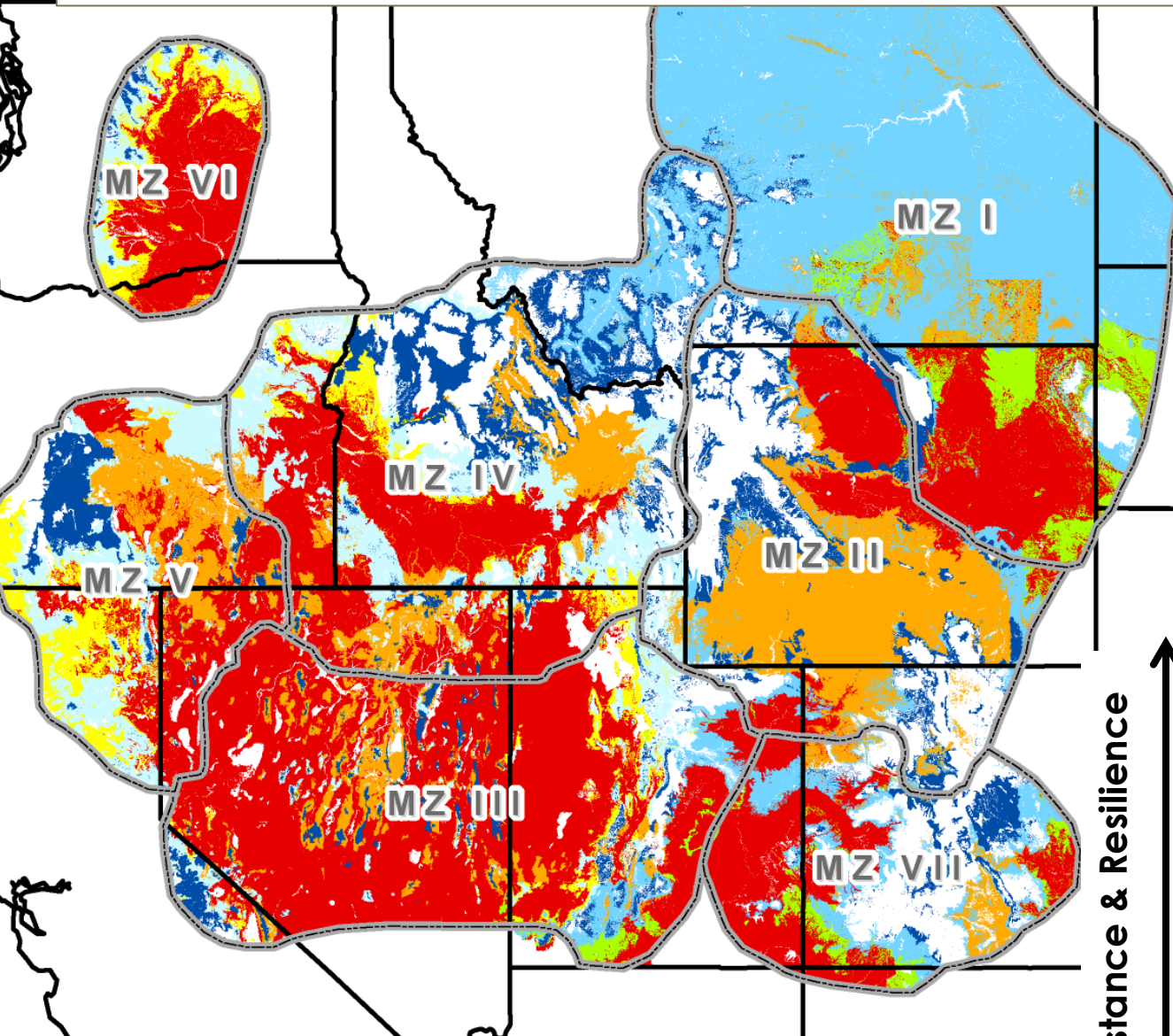
(Chambers et al. 2014)

# A Strategic, Multi-Scale Approach

Scale/Area	Tools and Models
	<b>Scale-Dependent/Additive</b>
Sagebrush Biome	<b>Habitat</b> <b>Soils</b> <b>Population data and models</b> <b>Priority Resource data</b> <b>Fire and other threat data</b> <b>Climate change projections</b>
Sage-Grouse MZs and Ecoregions	<b>Above +</b> <b>Assessments &amp; Planning Docs</b> <b>Regional Data &amp; Models</b> <b>Regional Tools</b>
Local and site planning and implementation areas	<b>Above +</b> <b>Local/site Data &amp; Models</b>

\*USFS, NRCS, USGS, BLM, WAFWA, NGOs, IPCC, etc.

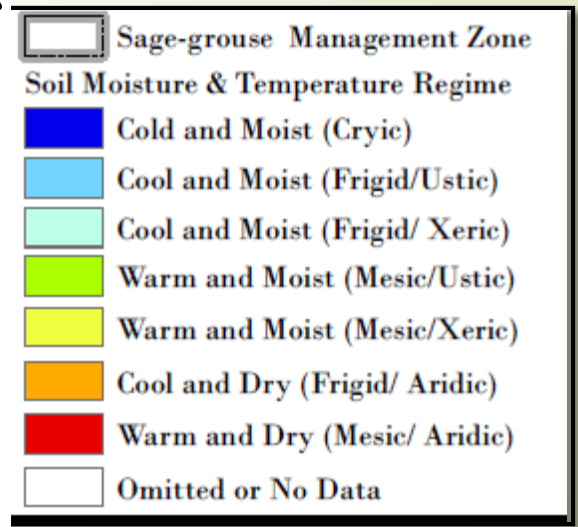
# R&R Indicator - Soil Temperature & Moisture



Soil temperature & moisture regimes  
= Indicator of resilience & resistance

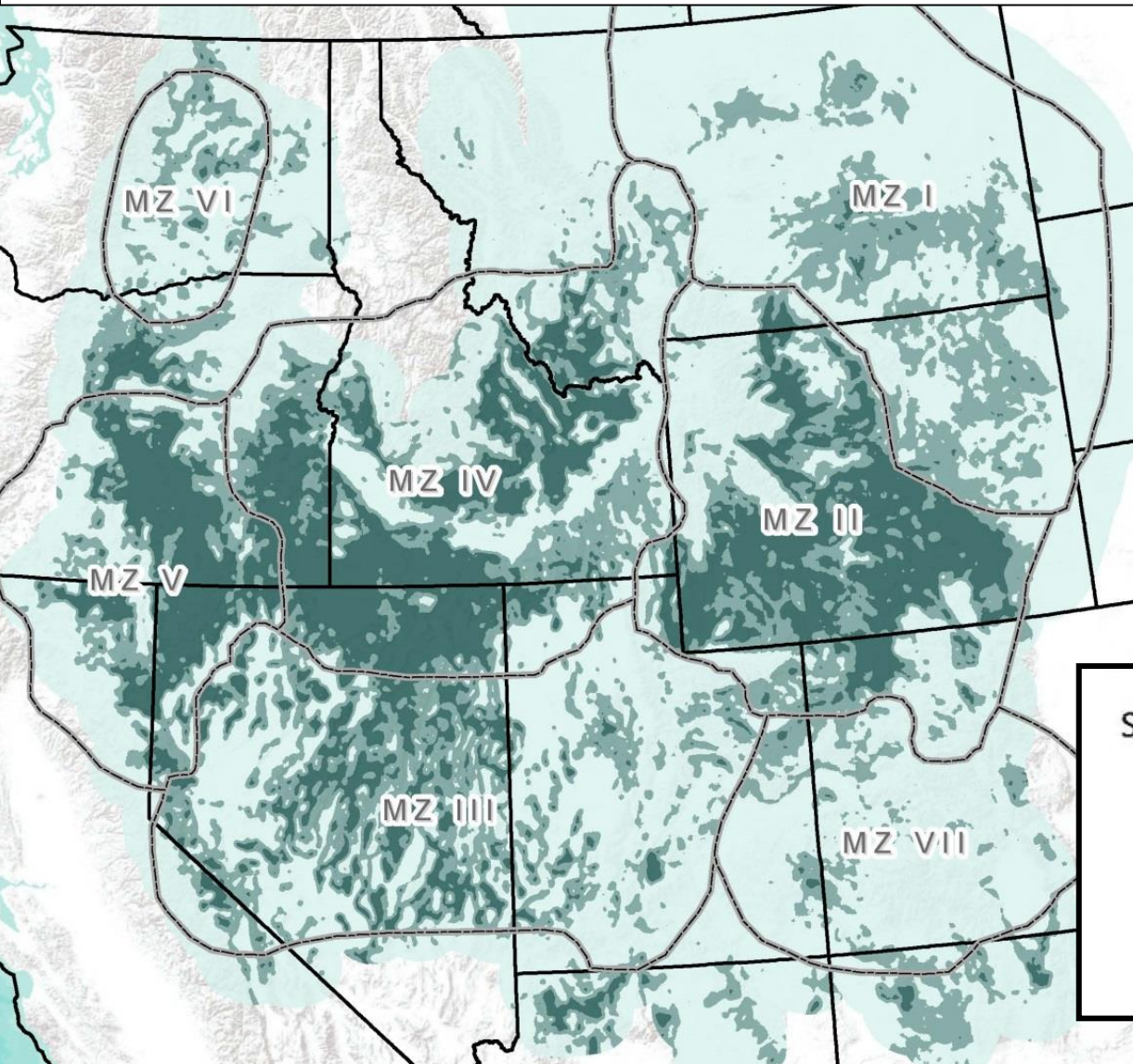
+ Soil Survey data available west-wide

Resistance & Resilience ↑



SURGO – 1:24,000 with gaps filled with STATCO -1:250:000  
(Maestas et al. 2016)

# Habitat Indicator – Sagebrush Landscape Cover

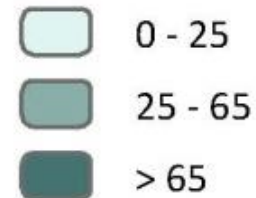


Landscape cover of sagebrush

= Indicator of sage-grouse habitat & sagebrush obligates at landscape scales

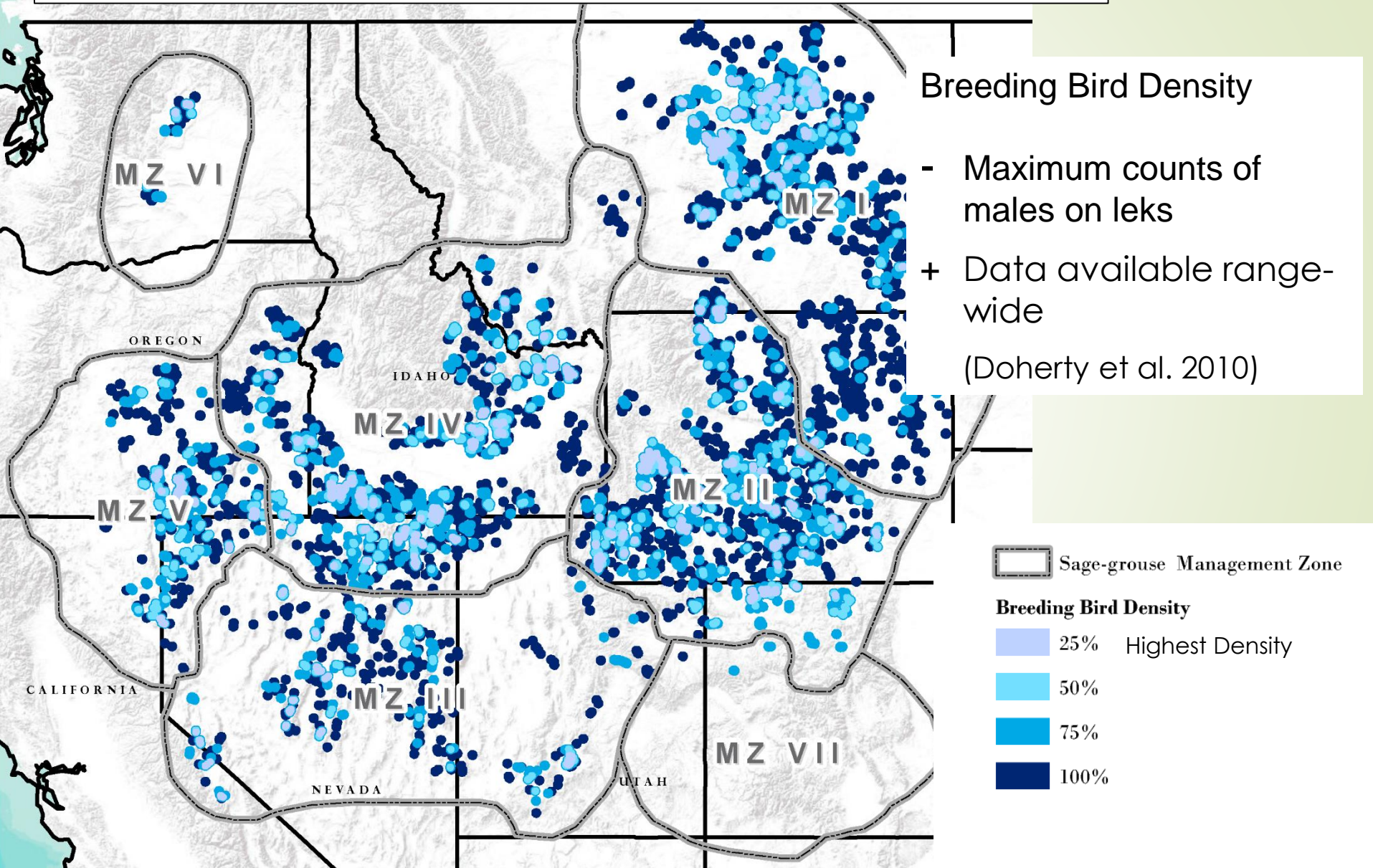
+ Landsat data available west-wide

Sagebrush % Area

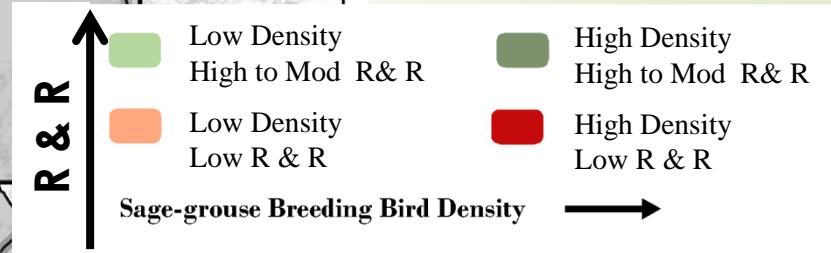
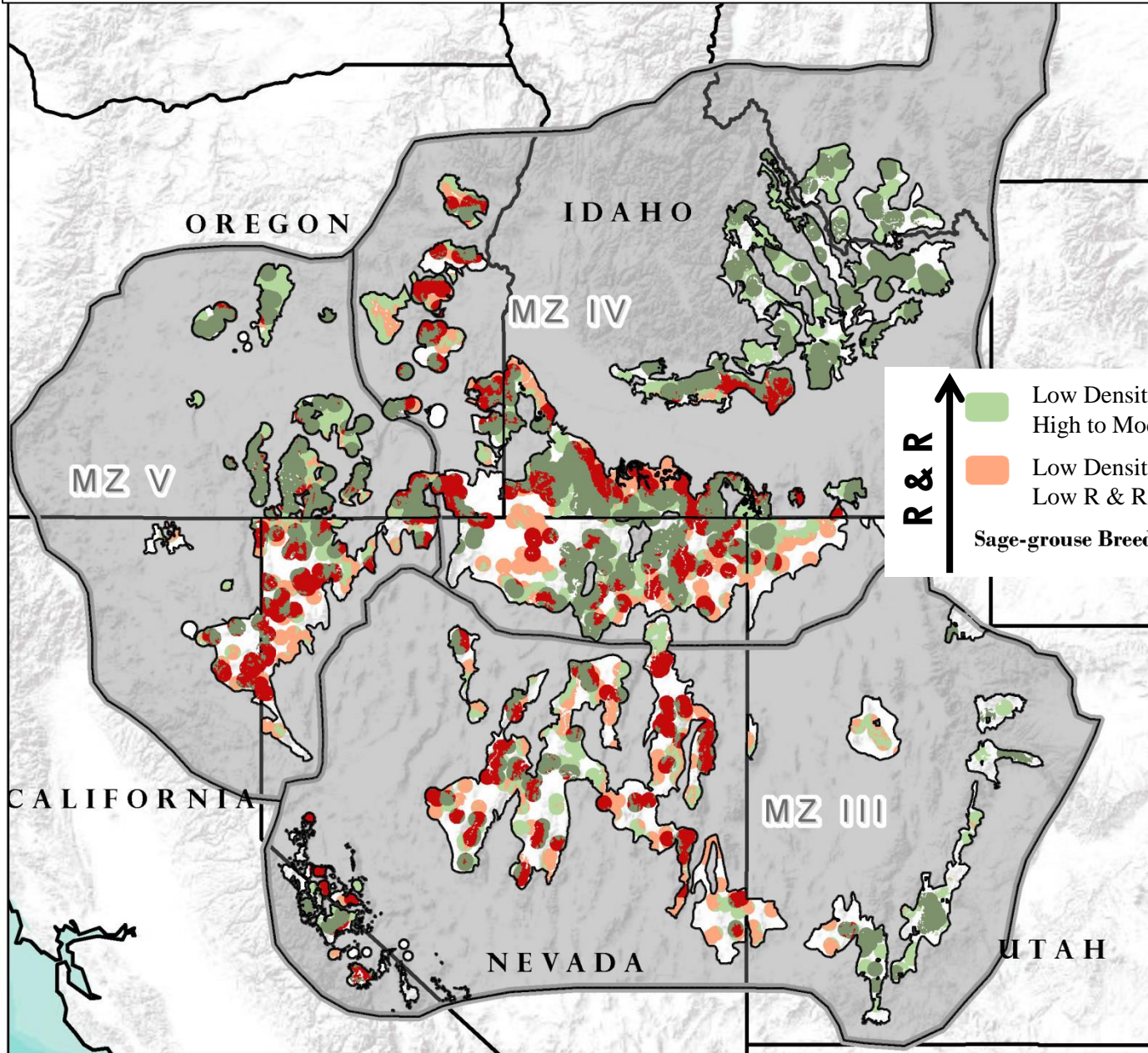


Proportion sagebrush within each category in 5-km radius  
(Landfire 2013 Imagery; USGS available 2016)

# Population Viability – Sage-Grouse Breeding Bird Density



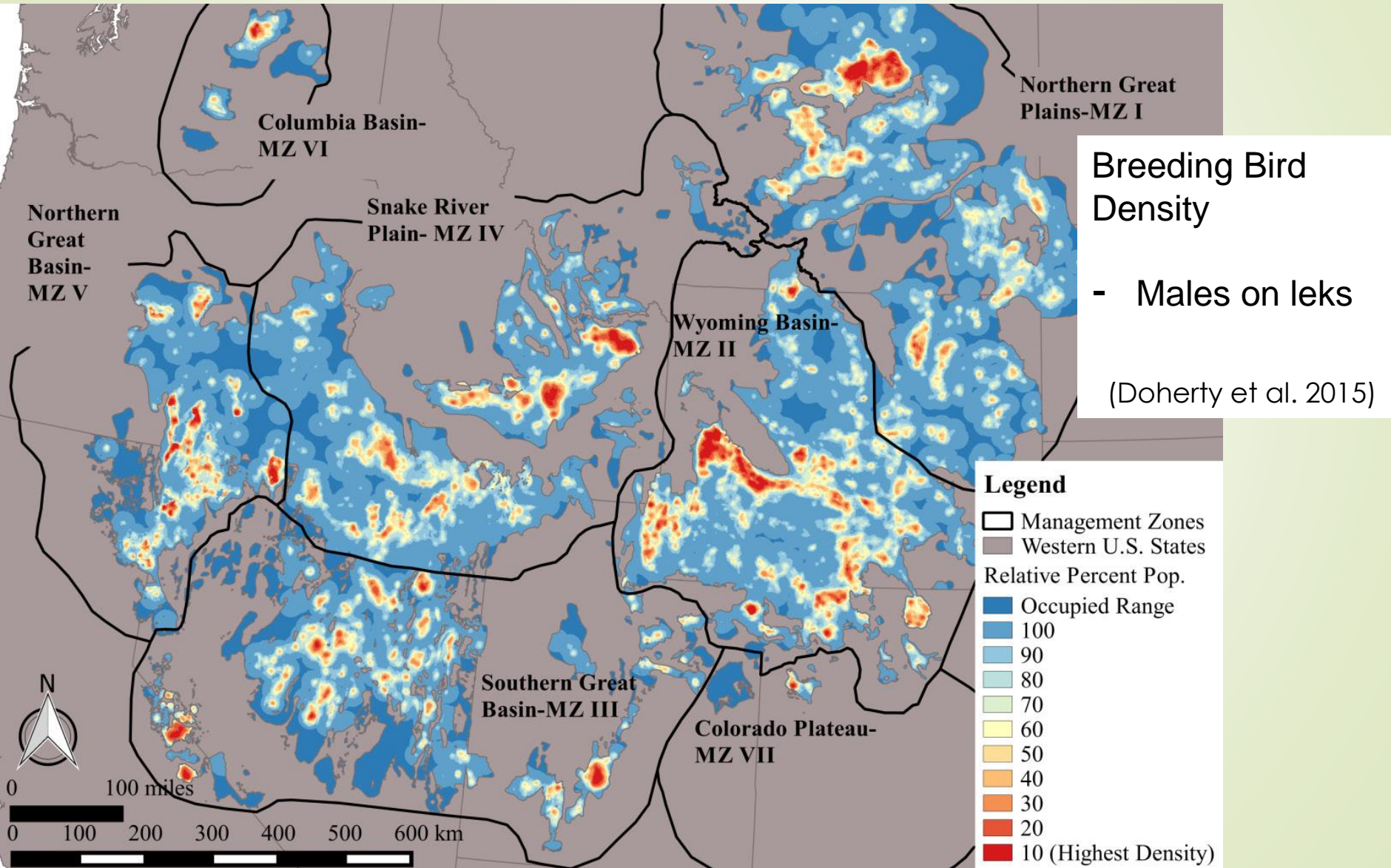
# Prioritizing Landscapes for Management



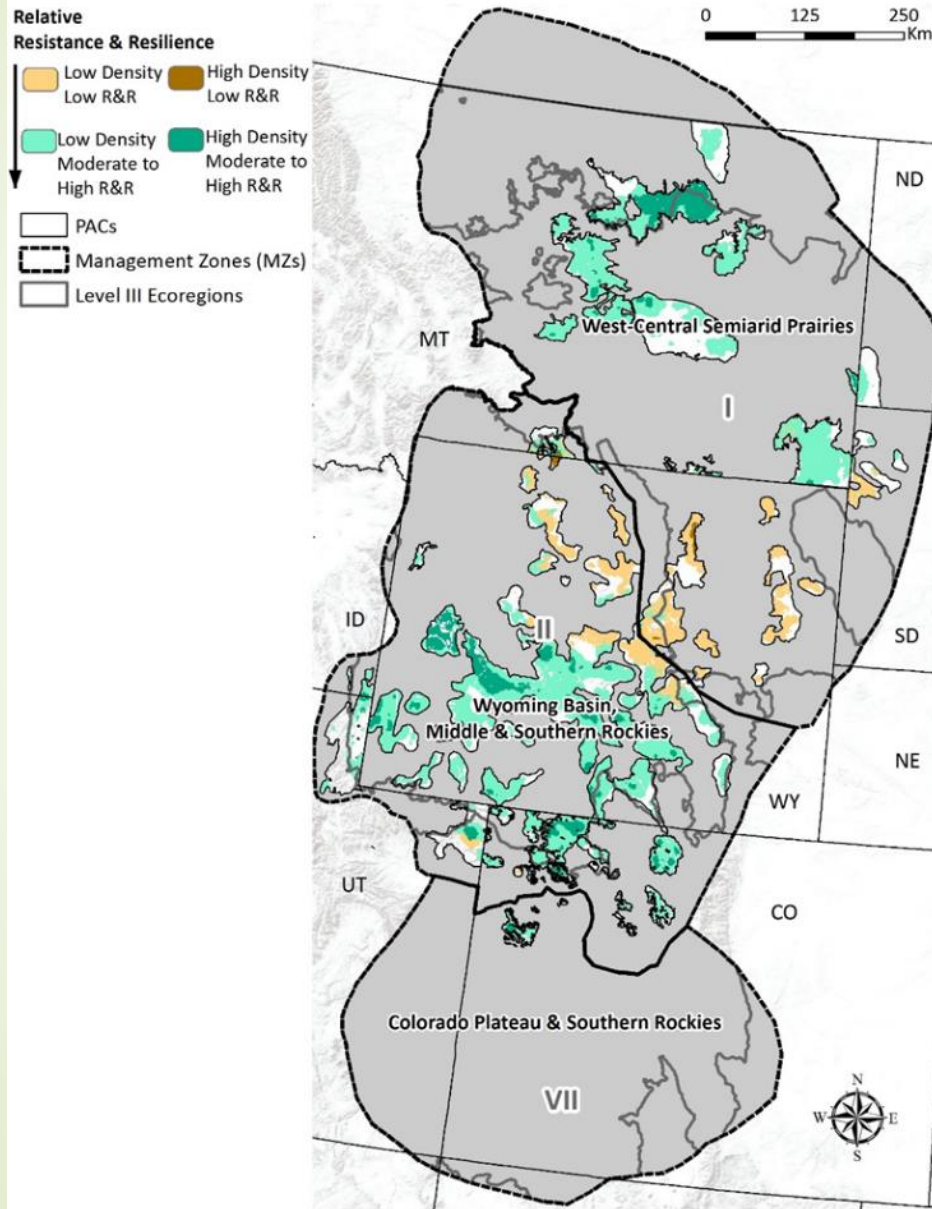
(Chambers et al. 2014)



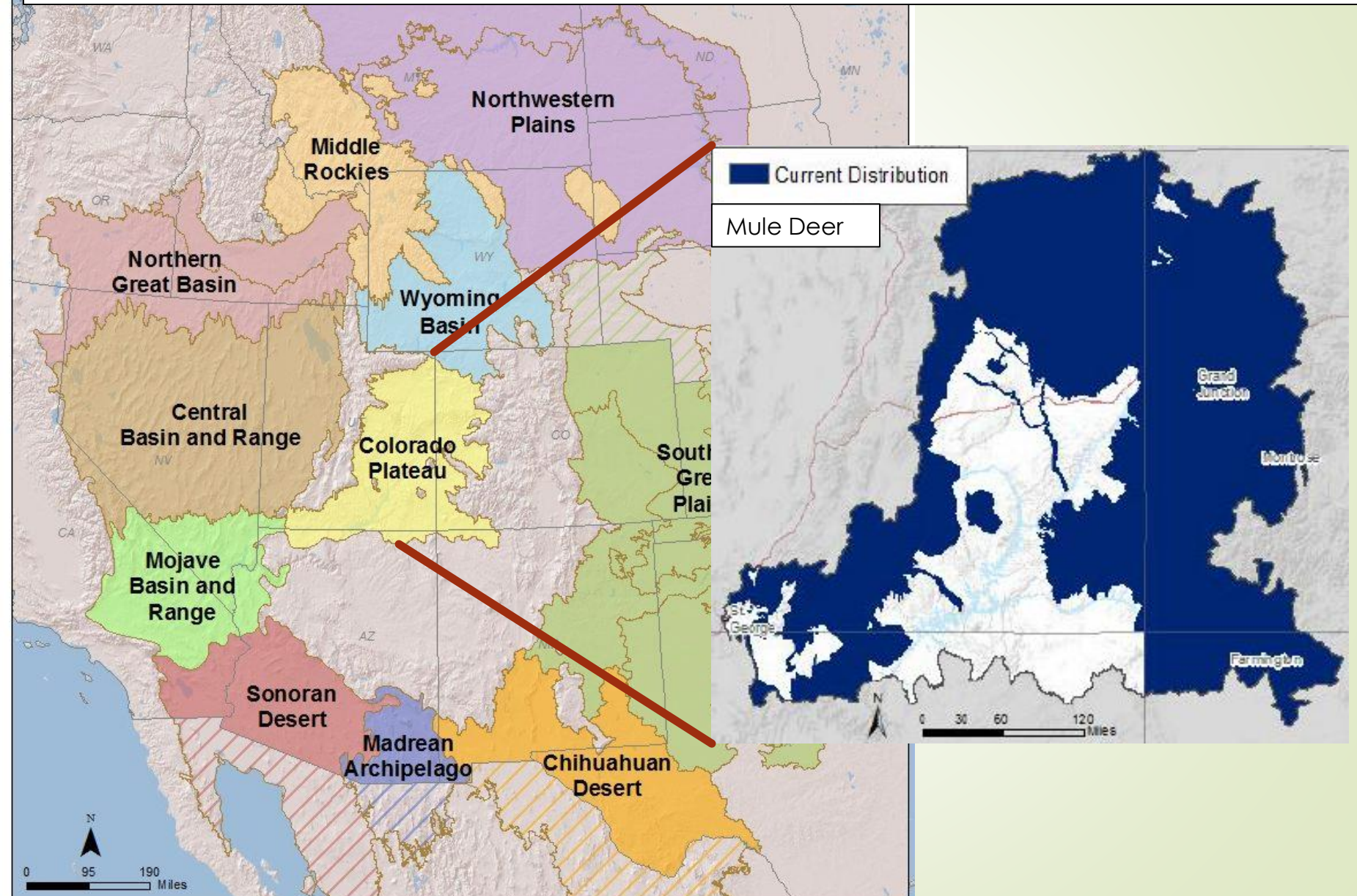
# Population Viability – Sage-Grouse Breeding Bird Density



# Prioritizing Landscapes for Management

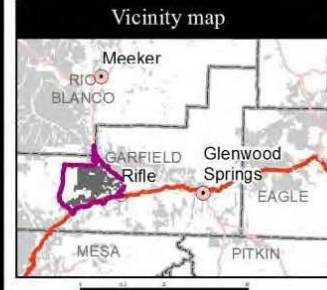
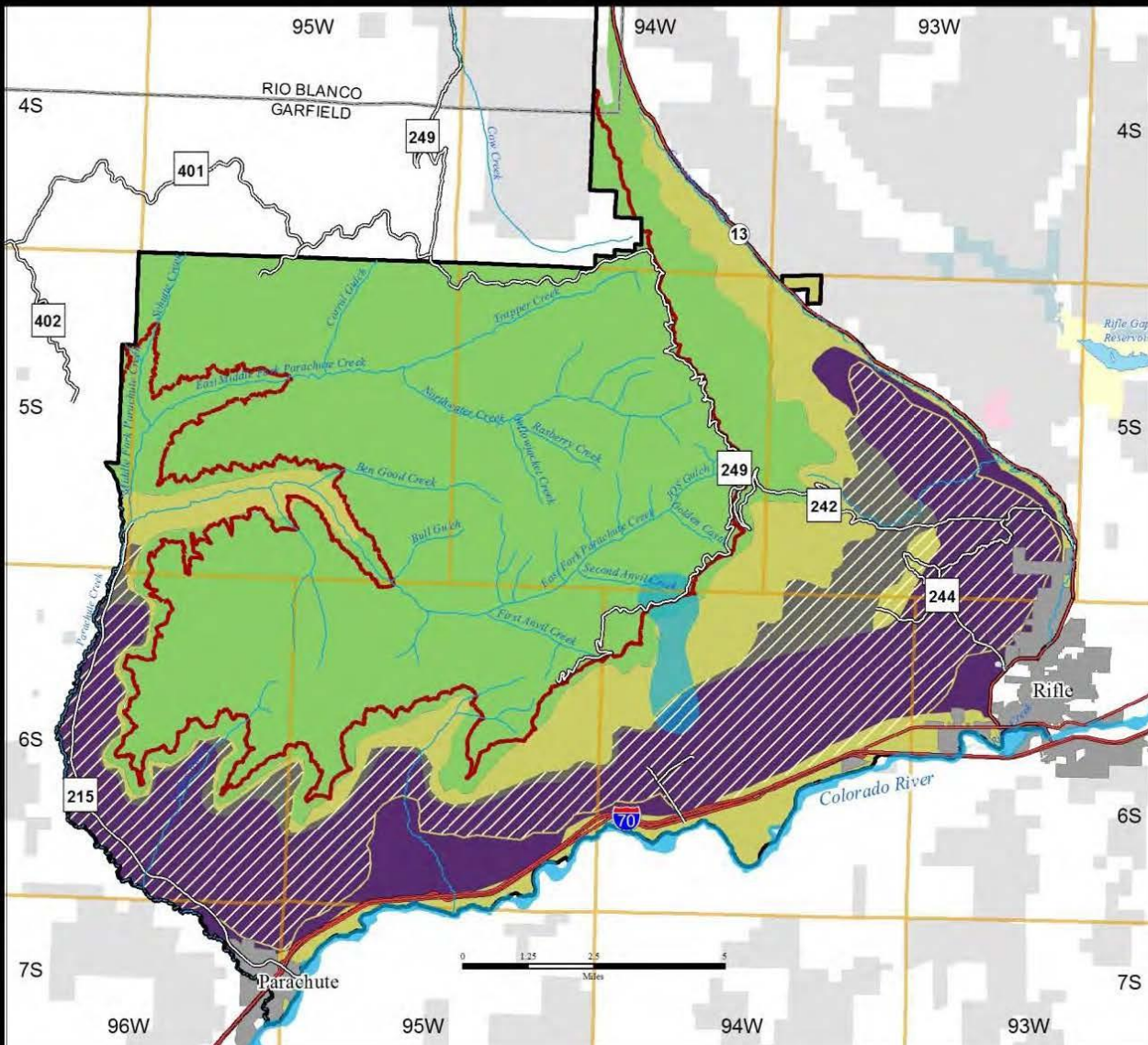


# Informing Regional Assessments – BLM Rapid Ecoregional Assessments



# Informing Planning and Project Level Assessments – Roan Plateau, CO

## Mule Deer Habitat



# Multi-scale Decision Matrix

## Proportion of Landscape Dominated by Sagebrush

Resilience & Resistance of Sagebrush Community

**Low = < 25%**

**Medium = 25-65%**

**High = > 65%**



**High**

Requires longer timeframe,  
enhance connectivity.

Little intervention needed,  
enhance connectivity.

Little-to-no intervention  
needed.

**RESTORATION/RECOVERY POTENTIAL HIGH**

*Native grasses and forbs sufficient for recovery*

*Annual invasive risk low*



**Moderate**

Requires longer timeframe  
and intervention.

Enhance connectivity,  
minimize risk of invasives.

Little intervention needed,  
minimize risk of invasives.

**RESTORATION/RECOVERY POTENTIAL INTERMEDIATE**

*Native grasses and forbs usually adequate for recovery*

*Annual invasive risk moderate*

*Treatment success depends on site characteristics*



**Low**

Recovery unlikely.

Long timeframe for  
recovery, high amount of  
intervention.

Moderate timeframe for  
recovery, moderate-high  
amount of intervention.

**RESTORATION/RECOVERY POTENTIAL LOW**

*Native grasses and forbs inadequate for recovery*

*Annual invasive risk is high*

*May require multiple management interventions*

# Stepping Down to the Site

## ***Management activities based on likely site response (R&R) and habitat/resource needs***

- Decision Tools
  - Soils and ecological site descriptions
  - State and transition models
  - New field guides & restoration handbooks based on R&R for Great Basin
- Information/models on specific habitat/resource requirements like -
  - Sage-grouse habitat restoration models
  - Guides for marking fences, predator control, etc., for sage-grouse



**Fire Operations**

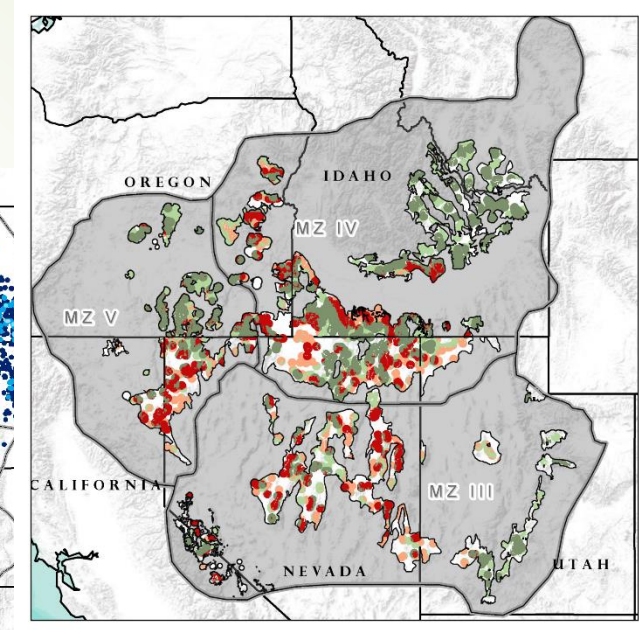
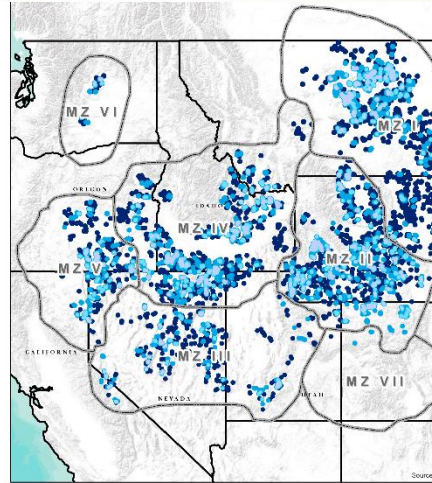
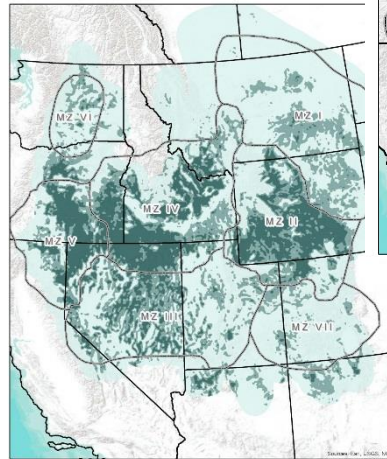
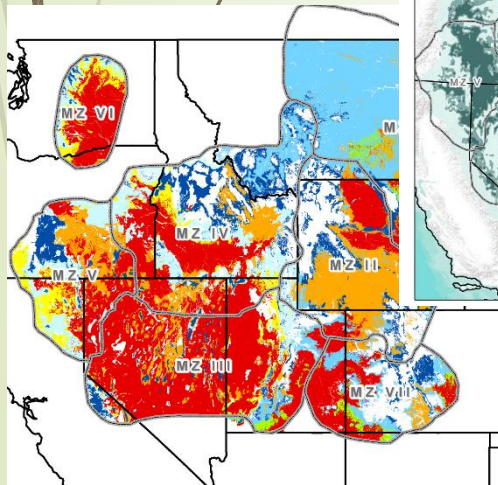


**Fuels Management**



**Restoration & Post-fire Rehabilitation**

# The Common Science Framework



Sources: ERI, USGS, etc.

# Not Just a Science Project

- Outputs will be used to inform the development of budget priorities for conservation & restoration activities in sagebrush ecosystems
  - ❑ Example - Fire and Invasives Assessment Tool
- Collaboration with partners is essential!
  - ❑ Webinar for SMRRT – coming soon
  - ❑ July 1, 2016 – coming sooner than we think!





We need your help!





# Spatial Data and the SO 3336 Geospatial Framework

Providing information for multi-scale  
management

February 26, 2016



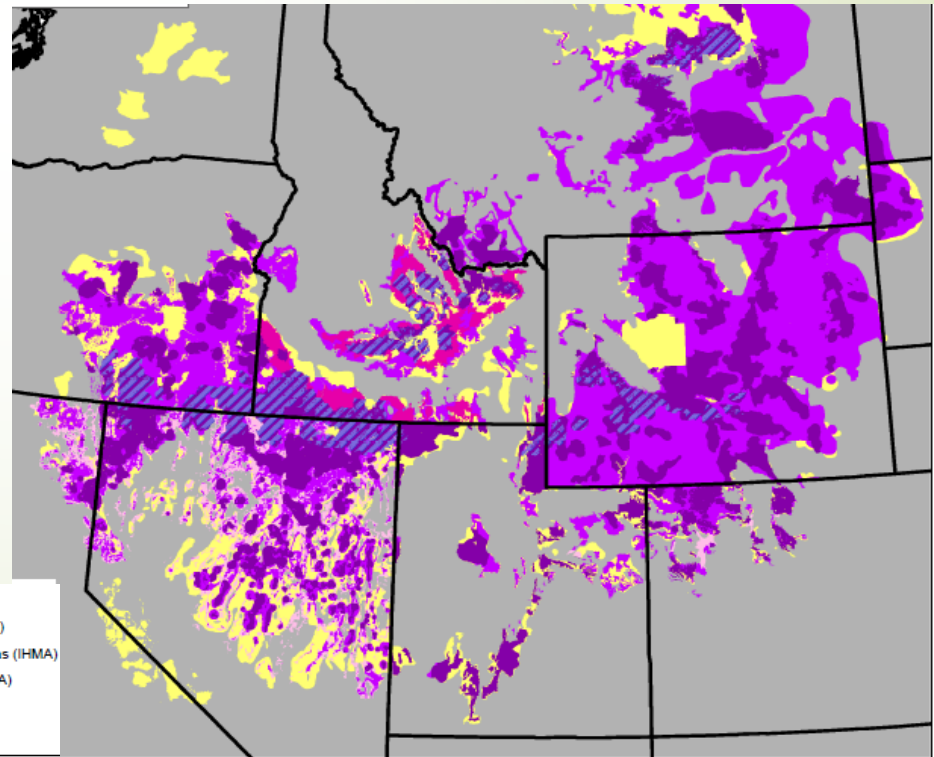
# Data and Models for Multi-scale Management

Scale/Area	Tools and Models
	<b>Scale-Dependent/Additive</b>
Sagebrush Biome	<b>Habitat</b> <b>Soils</b> <b>Population data and models</b> <b>Priority Resource data</b> <b>Fire and other threat data</b> <b>Climate change projections</b>
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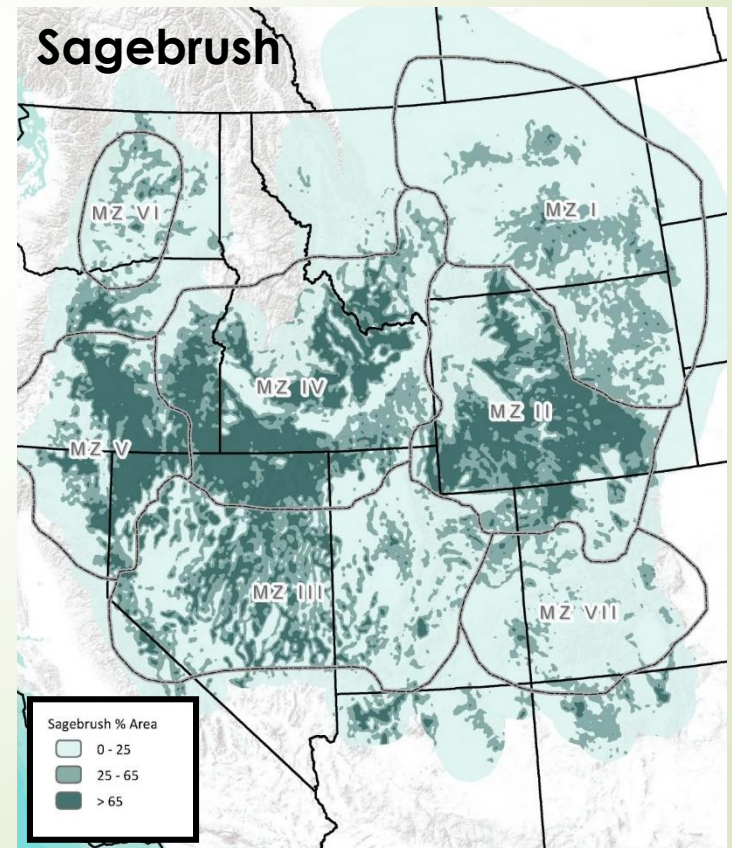
# Sagebrush Biome Scale

- Greater Sage-grouse Habitat Management Areas
  - Current range, SFA, PHMA, GHMA, IHMA, OHMA
- LANDFIRE Existing Vegetation Type
- Soil Temperature and Moisture Regime
- Disturbance
  - Roads
  - Energy Development
- Breeding Bird Density
- Other Values



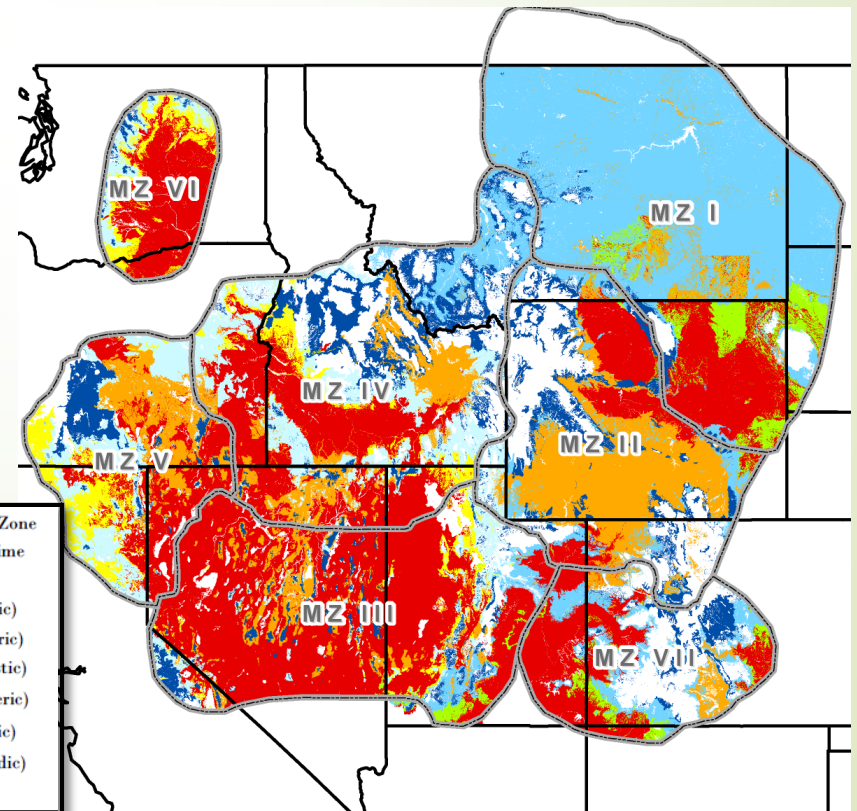
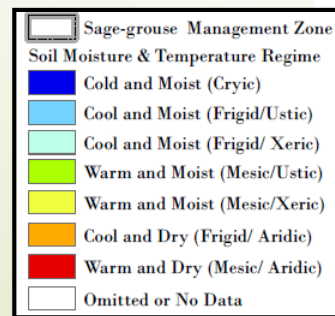
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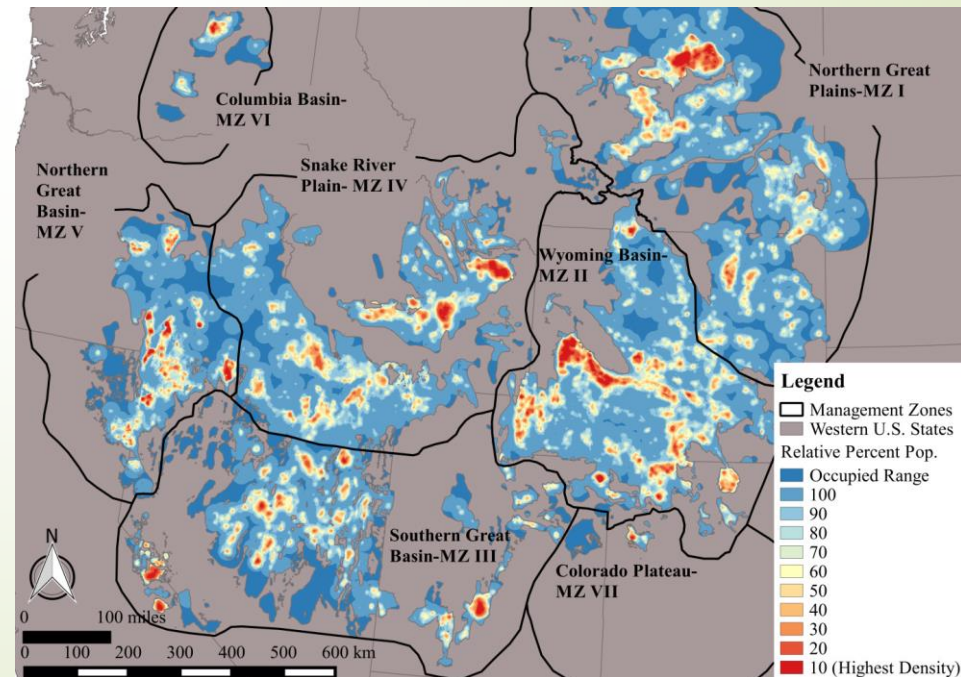
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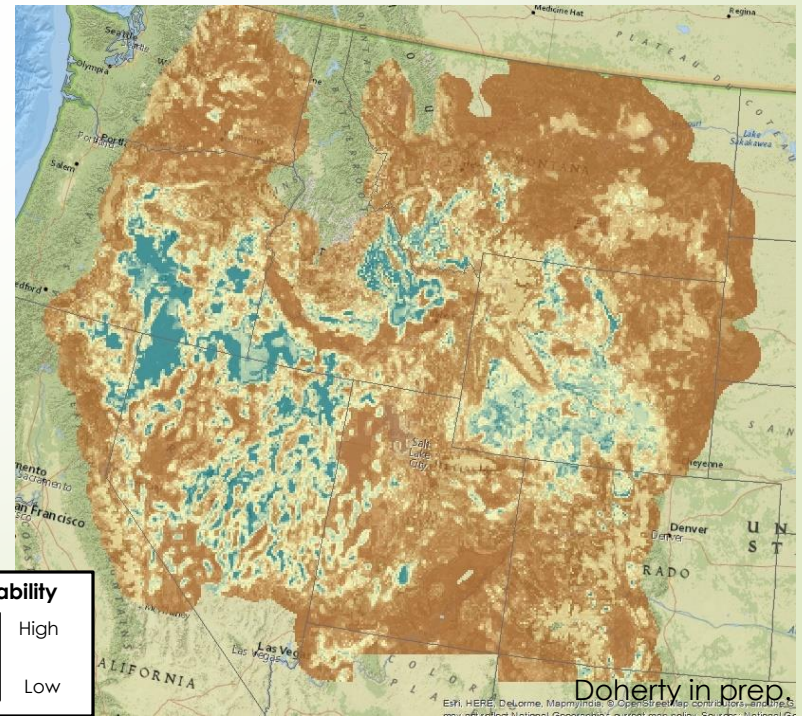




# Sagebrush Biome Scale

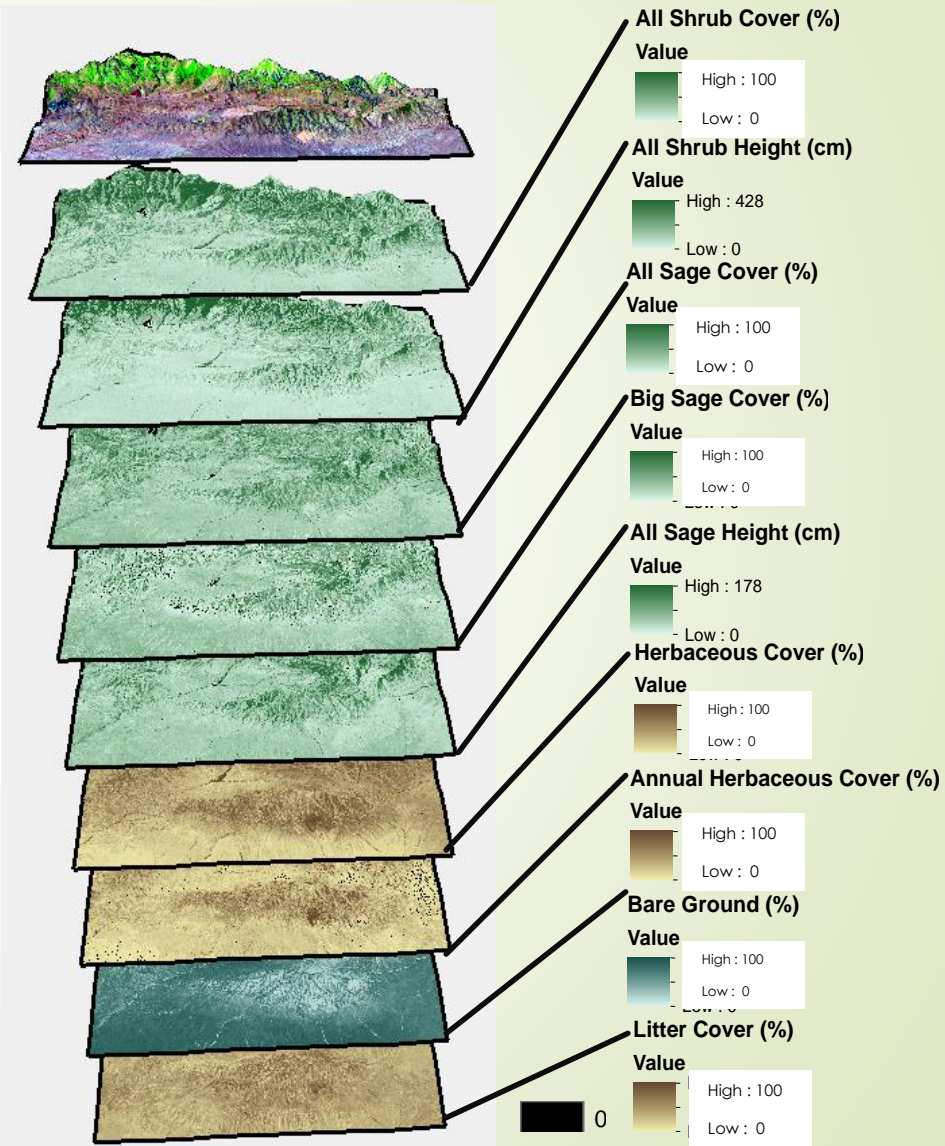
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- Soil Temperature and Moisture Regime
- Disturbance
  - Roads
  - Energy Development
- Breeding Bird Density
- Other Values

## Brewer's Sparrow



# Regional Scale

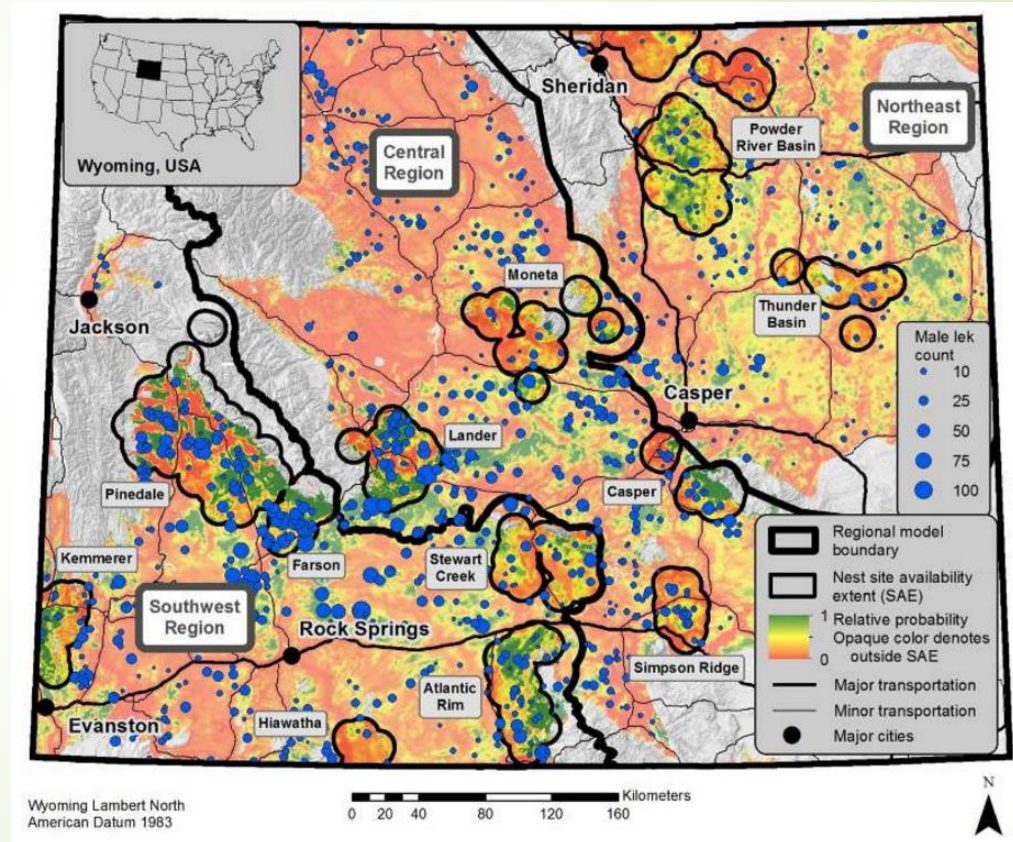
- Vegetation
- Disturbance
  - Roads
- Seasonal Habitat
- Wetlands and Riparian
- Conifer



# Regional Scale

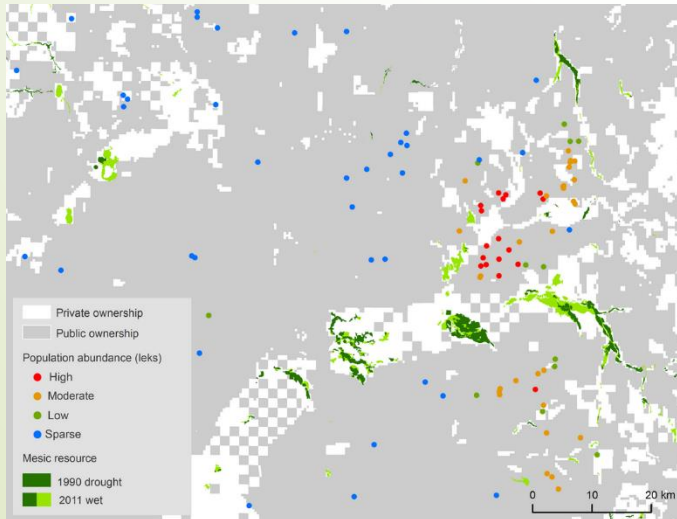
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## Nesting Habitat in Wyoming

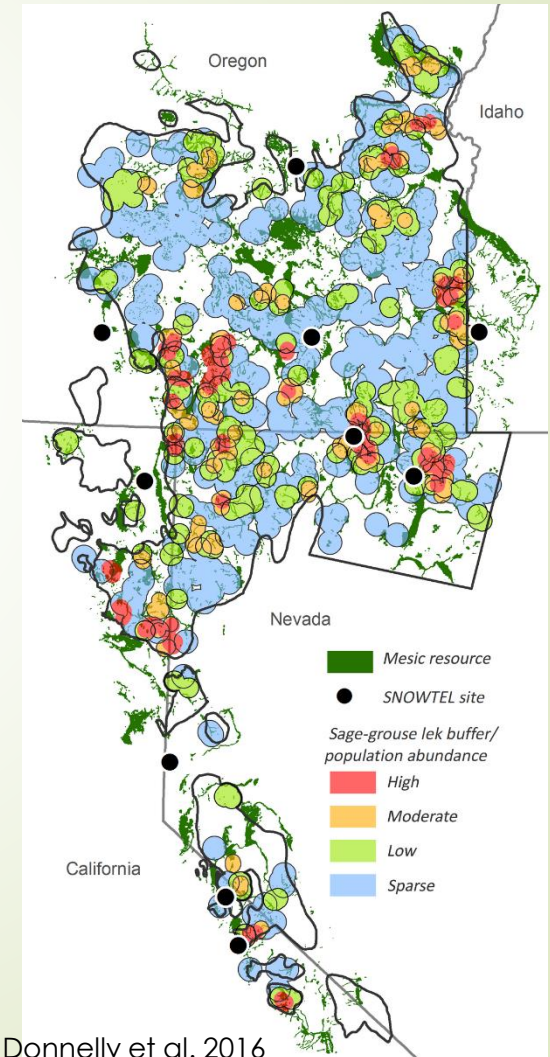


# Regional Scale

- Vegetation
- Disturbance
  - Roads
- Seasonal Habitat
- Wetlands and Riparian
- Conifer



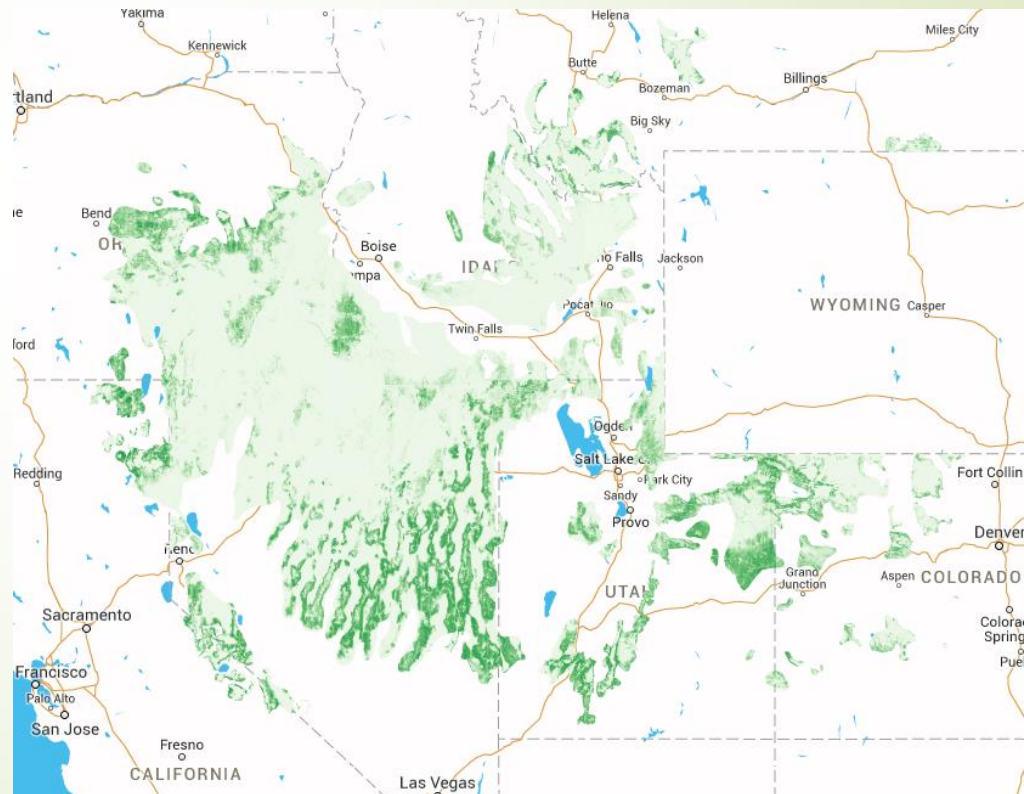
## Mesic resource distribution



# Regional Scale

- Vegetation
- Disturbance
  - Roads
- Seasonal Habitat
- Wetlands and Riparian
- Conifer

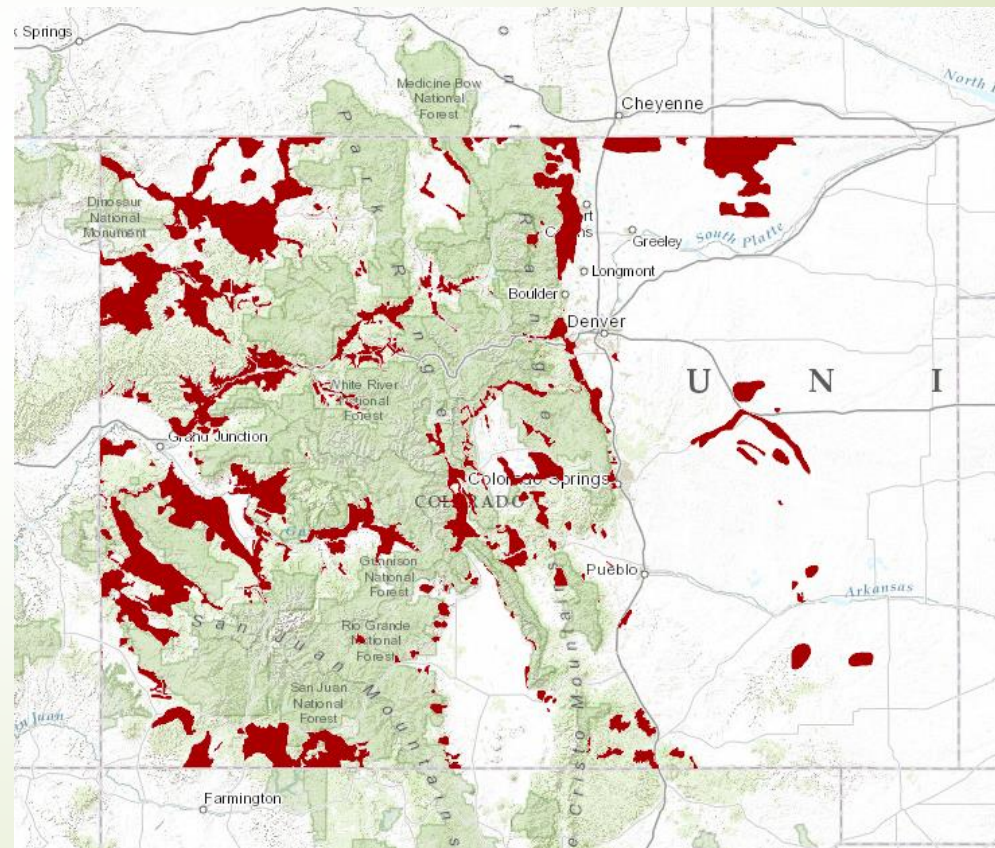
## Conifer Distribution



# Regional Scale

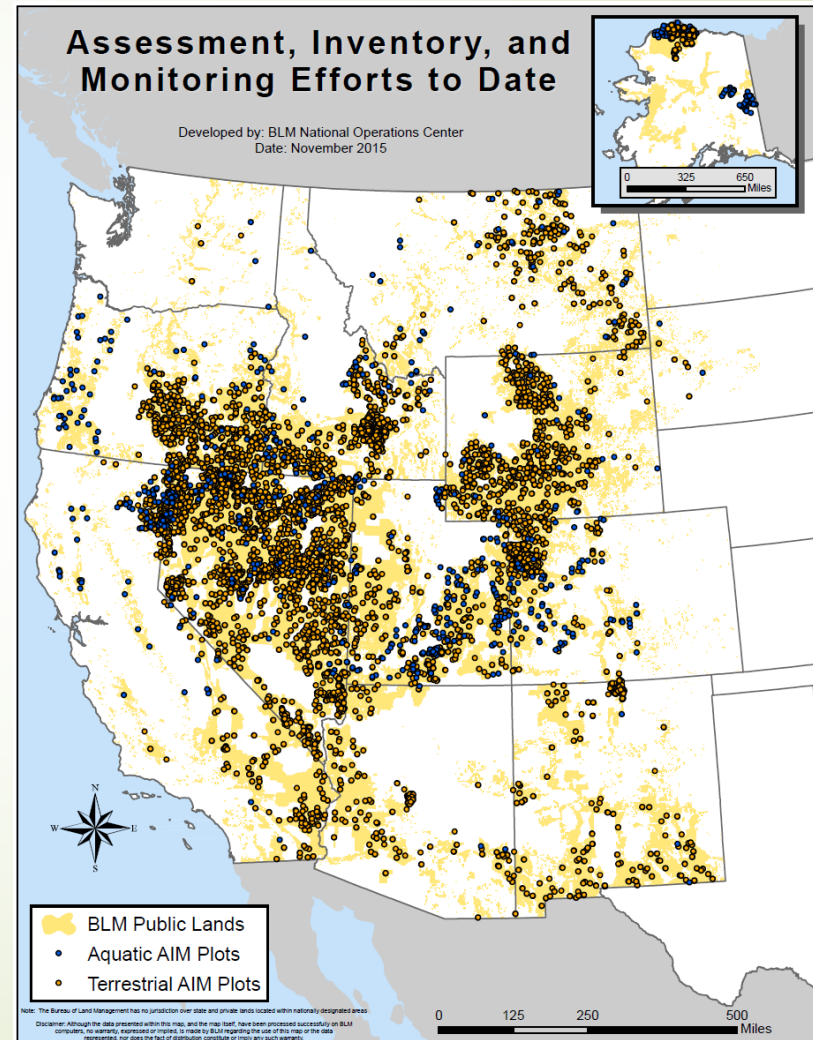
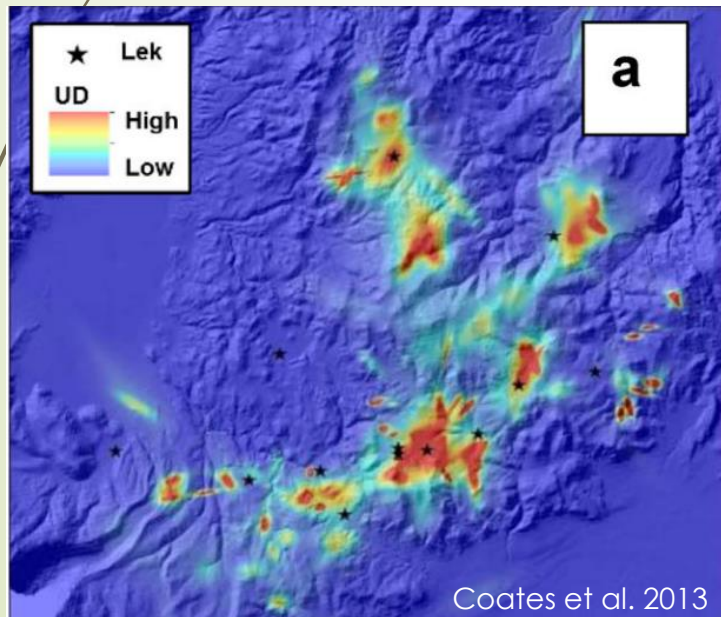
- Vegetation
- Disturbance
  - Roads
- Seasonal Habitat
- Wetlands and Riparian
- Conifer
- Other Values

Mule Deer Winter Range

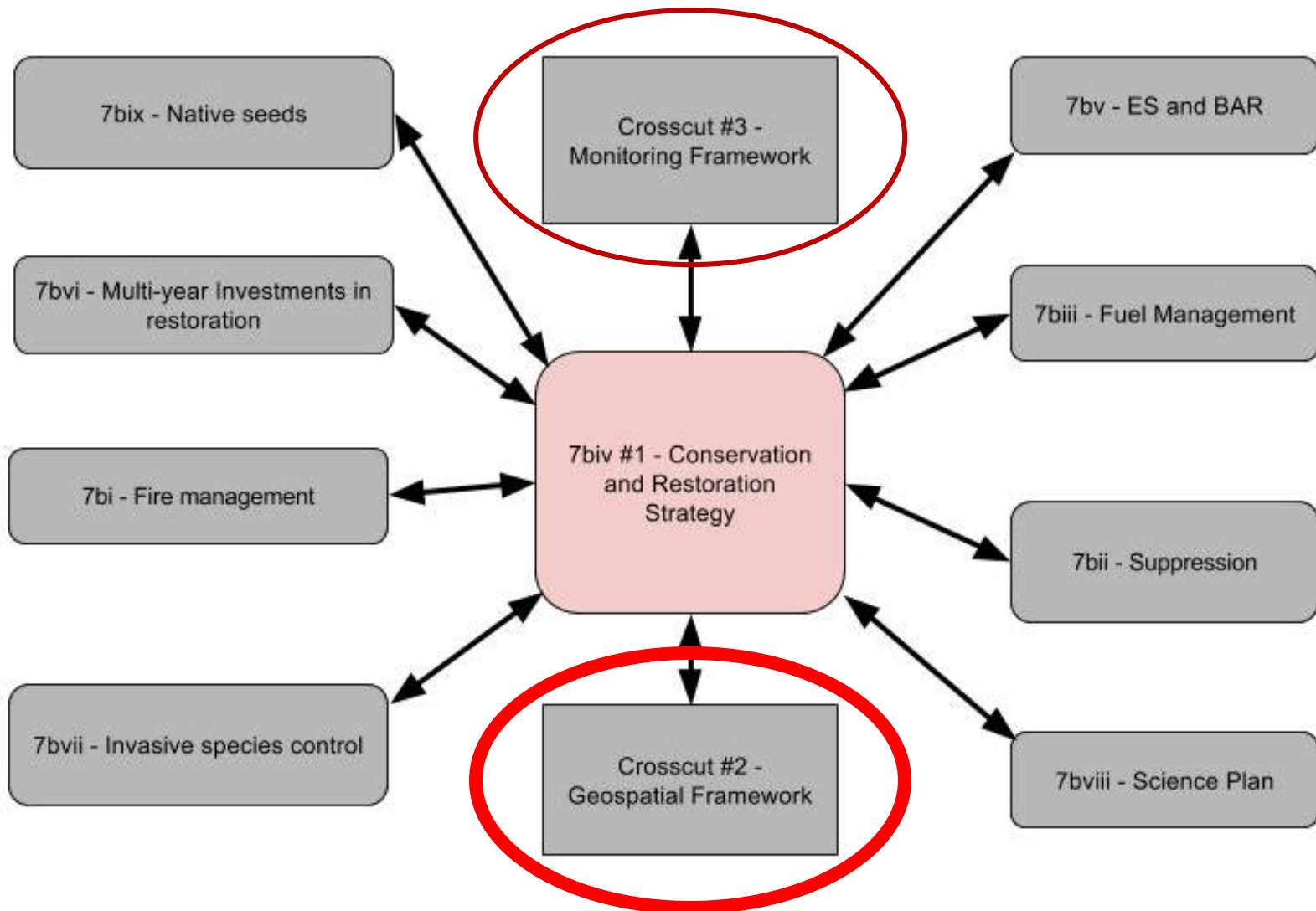


# Local/Site Scale

- Fine-scale spatial data
- AIM Data
- Habitat Assessment Framework
- Sage-grouse movement



# What are the linkages among the components of the Common Science Framework?





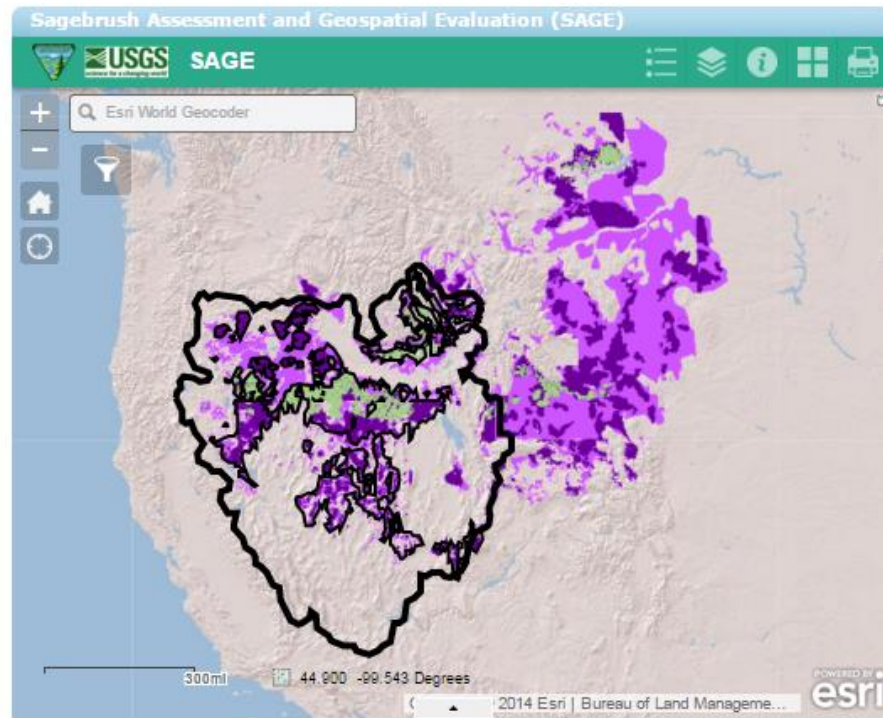
# The Geospatial Framework



## Integrated Rangeland Fire Management Strategy Geospatial Framework (Secretarial Order 3336)

The **Integrated Rangeland Fire Management Strategy** sets in motion actions to enhance the protection, conservation, and restoration of a healthy sagebrush-steppe ecosystem, and to address important public safety, economic, cultural, and social concerns. An Integrated Rangeland Fire Management Strategy (the Strategy) is intended to improve the efficiency and efficacy of actions to address rangeland fire, to better prevent and suppress rangeland fire, and improve efforts to restore fire-impacted landscapes. For this reason, the Strategy relies, in part, on the Fire and Invasive Assessment Tool (FIAT) to assess the major threats to the sagebrush-steppe in order to conserve the greater sage-grouse and its habitat. "Resilience" and "resistance" to rangeland fire is the basis of FIAT.

The published Secretarial Order 3336 reports, related data layers, and maps can be found in this portal. Use the search box to the right to find SO3336 products or use the keyword "SO3336" on the Search All or Browse All pages list above.



### Resources

Click on the links below to find SO3336 resources

- [SO3336 Downloadable Data](#)
- [SO3336 Dynamic Map Services](#)
- [SO3336 Documents](#)

Or enter a keyword in the Search Box below

To search only SO3336 follow this example:  
isPartOf:RFSO AND Sage-Grouse

or [Browse](#) by SO3336 Category

### Featured Documents

Download SO3336 documents below

<a href="#">Secretarial Order Number 3336, Rangeland Fire Prevention, Management, and Restoration</a>
<a href="#">The Initial Report: A Strategic Plan for Addressing Rangeland Fire Prevention, Management, and Restoration in 2015</a>
<a href="#">The Final Report: An Integrated Rangeland Fire Management Strategy</a>
<a href="#">National Cohesive Wildland Fire Management Strategy Website</a>

# Geospatial Data Catalog



LANDSCAPE APPROACH OF PUBLIC LANDS  
U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## Landscape Approach Data Portal

Data, Maps, and Models from BLM's Landscape Approach Initiatives

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## Search

Text:

Example: *nwp AND sage grouse*

### FILTER CONTENT TYPE

Downloadable Data ▾

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Records shown from: **This Site**

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### WHERE

Anywhere  Intersecting  Fully within



Downloadable Data  Document  Model  Live Map Service  Static Map

Results 1-8 of 8 record(s)

Expand results [Zoom To Results](#) [Zoom To Searched Area](#)

[National Elevation Dataset \(NED\)](#)

[Geographic Names Information System - Community Layer](#)

[LANDFIRE - Fuel Loading Models \(LANDFIRE.US\\_110FLM\)](#)

[Cheatgrass Dieoffs](#)

[BLM GRSG Sagebrush Focal Areas \(SFA\)](#)

[Herbaceous Percent - Provisional Remote Sensing Shrub/Grass NLCD Products for the North Central Great Basin](#)

[BLM GRSG Proposed Priority Habitat Management Areas \(PHMA\)](#)

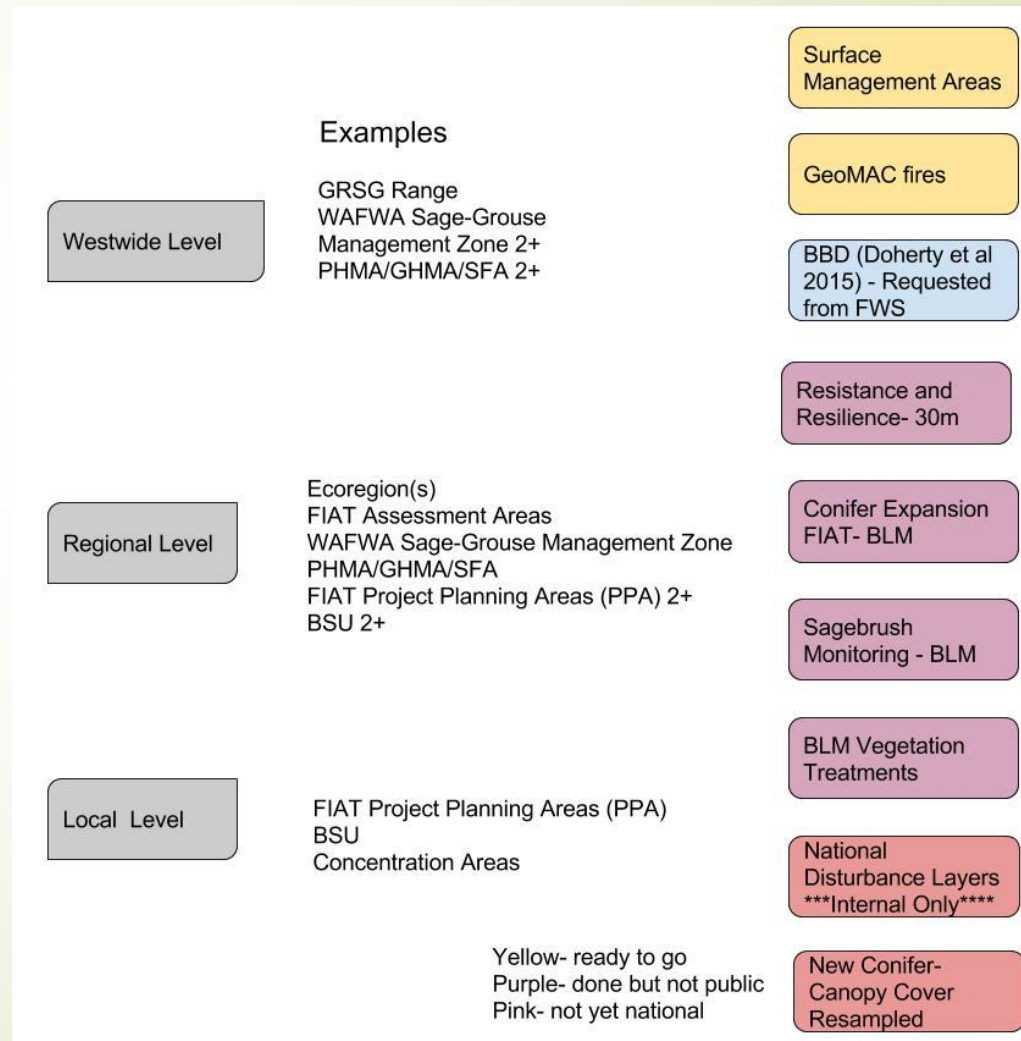
[BLM GRSG Proposed General Habitat Management Areas \(GHMA\)](#)

See results through REST API: [GEORSS](#) [ATOM](#) [HTML](#) [FRAGMENT](#) [KML](#) [JSON](#) [CSV](#)

# Geospatial Toolbox

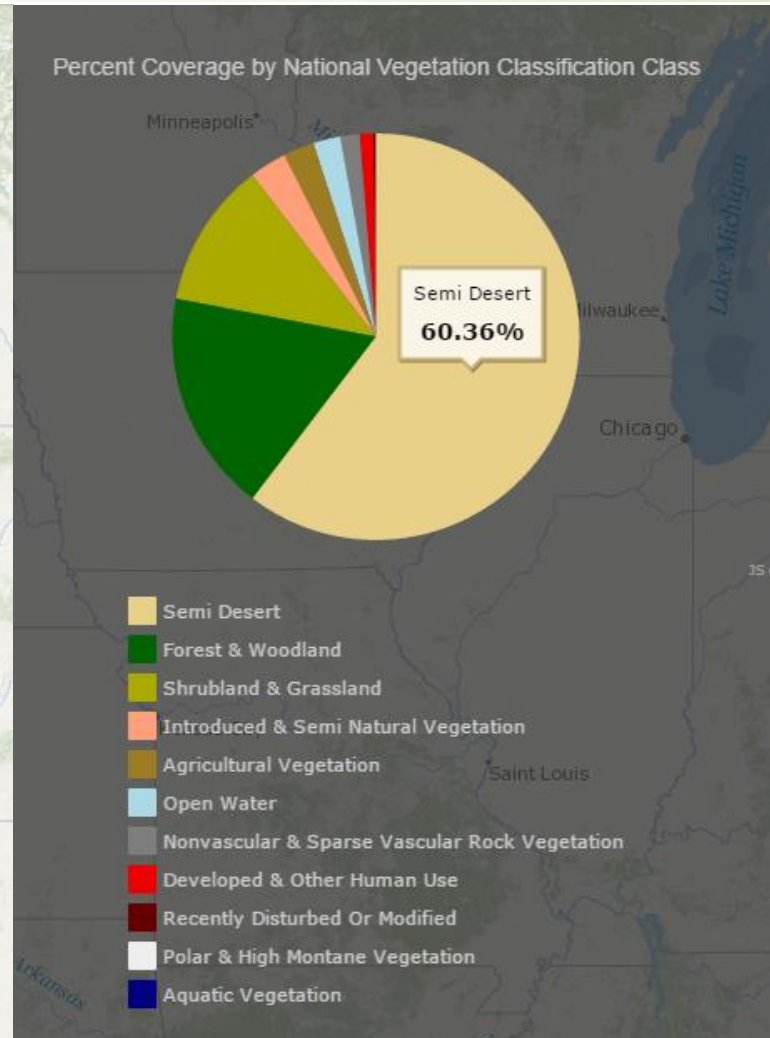
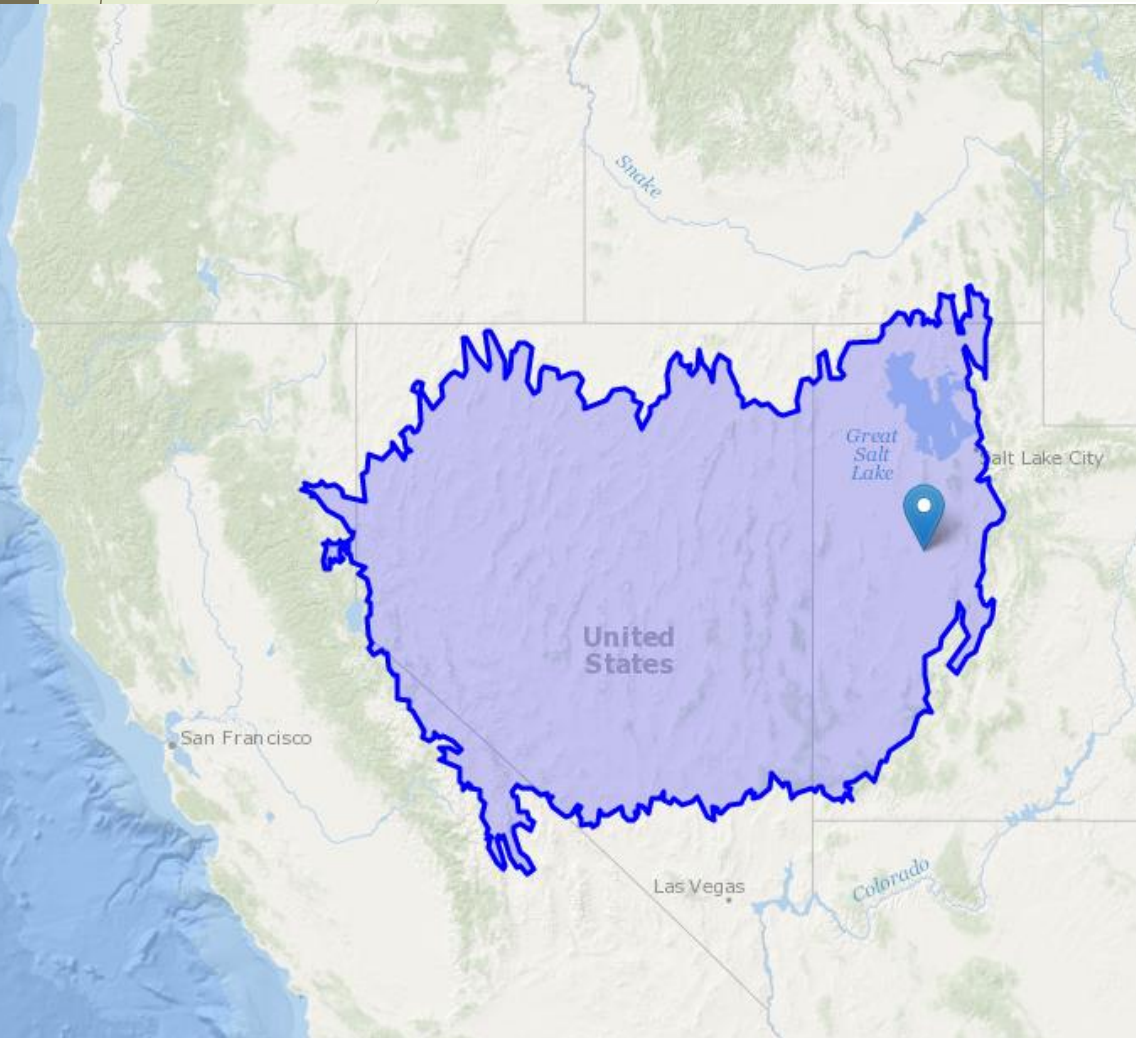
- Management Questions
- Decision Support
- Summaries
- Visualization

## Summary by boundaries

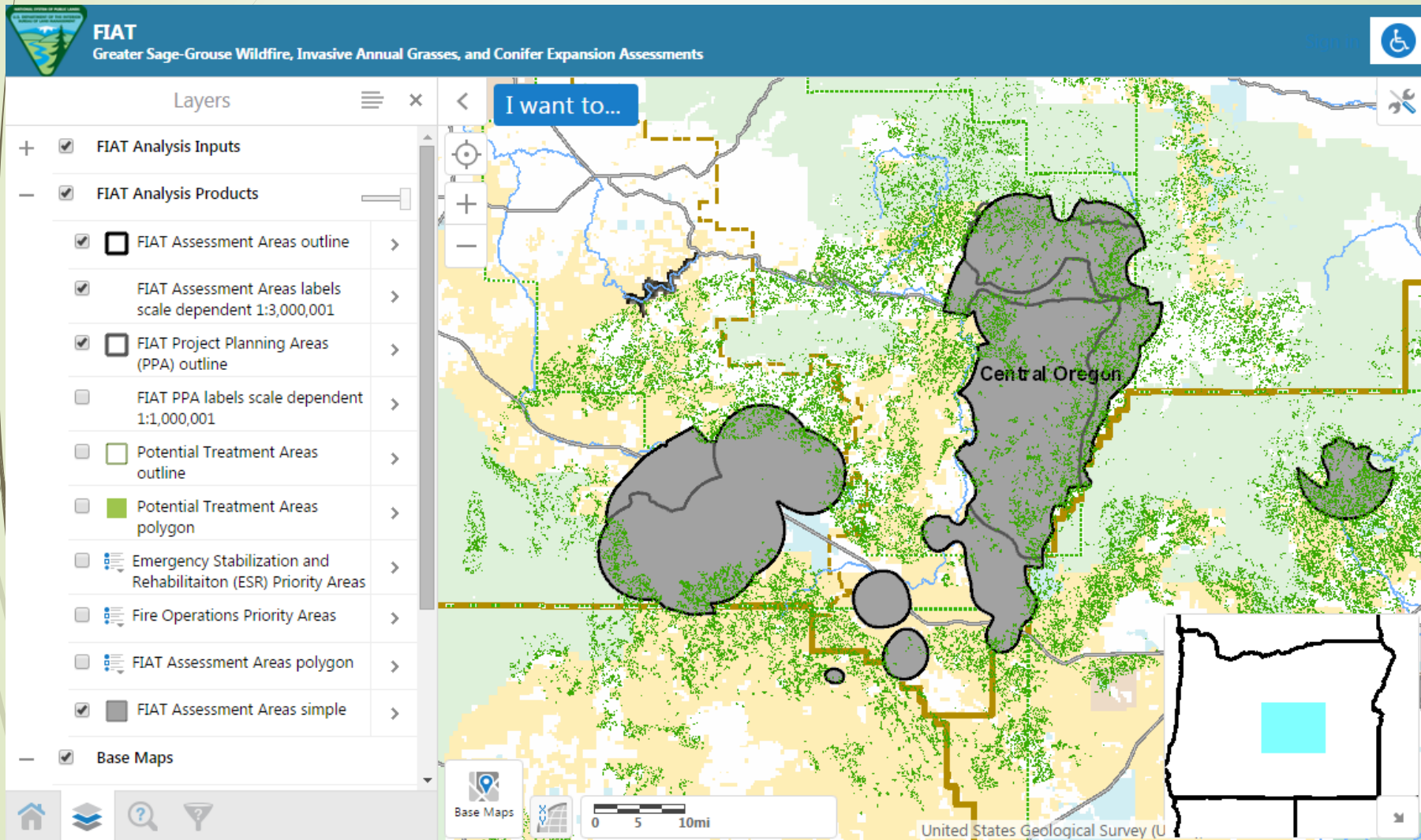


# Geospatial Toolbox

## Summary by boundaries

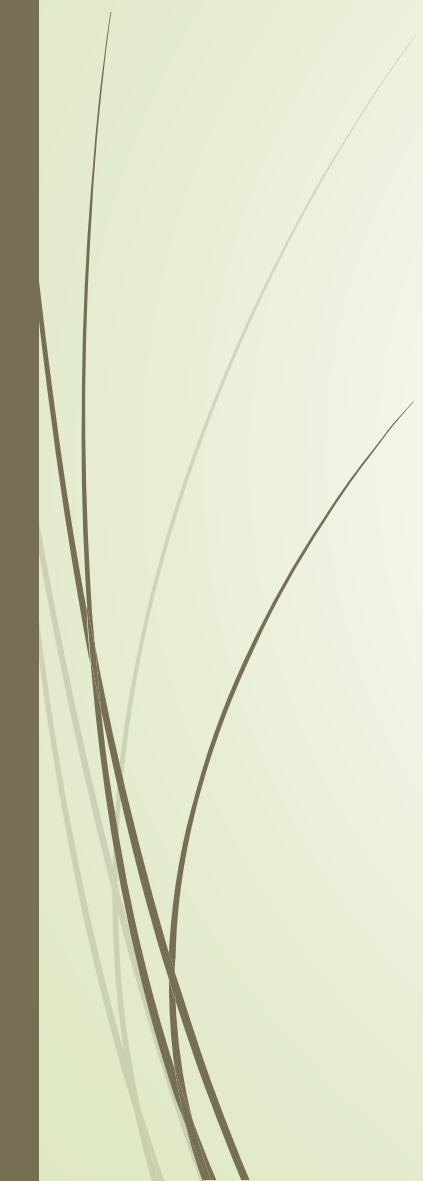


# Visualization Tools





# Geospatial Framework

- ▶ Provide Data and Tools to support IRFS
    - ▶ Catalog
    - ▶ Viewer
    - ▶ Analysis Toolbox
  - ▶ New data and tools to inform the management decision making
  - ▶ Utilizing USGS ScienceBase and BLM Landscape Approach Portal
  - ▶ Demo
- 



# Landscape Approach Data Portal

Data, Maps, and Models from BLM's Landscape Approach Initiatives

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## Home

The **BLM's Landscape Approach** Data Portal is a one-stop source for **geospatial data, maps, models and reports** produced by BLM's landscape initiatives including the:

- Rapid Ecoregional Assessments (REAs)
- Assessment Inventory & Monitoring (AIM) program
- Fire & Invasives Assessment (FIAT) program, and
- Sage-Grouse Initiative

To learn more about each initiative and the products that are available for them, click on the [images to the right](#) or the [tabs above](#). You can find products from all of these initiatives by using the [Search or Browse tabs](#) above.

On the Search page, enter any keyword(s) in the Text box or search by:

- Initiative — such as *AIM, REA, FIAT, or sage-grouse*
- Subject — such as *sage-grouse, soils, intactness*
- Place — such as *CO, Northern Great Basin*

You can conduct [advanced searches](#) on the Search page such as filtering by content type (e.g., data, map, model) or geographic extent. You can even [search other data portals](#) simultaneously, including USGS Science Base, Data.gov, and ArcGIS Online. Click on this [How To...](#) link for instructions.

On the Browse page, simply click each header to expand the various categories. For example, you can browse by Content Type (data, maps, models) or a specific REA (e.g., Colorado Plateau REA).

Rapid Ecoregional Assessments (REAs)



Assessment, Inventory & Monitoring (AIM)



Fire & Invasives Assessment Tool (FIAT)



Sage-Grouse





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- [BLM National Data](#)
- [Secretarial Order 3336](#)
- [How To](#)

...to assist people in taking a **Landscape Approach** in their work!

oregional  
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ent,  
y &  
ng (AIM)



vasives  
ent Tool



Sage-Grouse

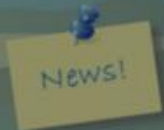






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**Data  
Information  
Tools**  
...at a landscape-scale



**Home**

The **BLM's Landscape Approach reports** produced by BLM's land

- Rapid Ecoregional Asses
- Assessment Inventory 8
- Fire & Invasives Assess
- Sage-Grouse Initiative

To learn more about each initiat or the [tabs above](#). You can find

On the Search page, enter any k

- Initiative — such as AIM
- Subject — such as sage
- Place — such as CO, No

You can conduct [advanced search](#) (model) or geographic extent. Yo Base, Data.gov, and ArcGIS Onli

On the Browse page, simply click each header to expand the various categories. For example, you can browse by Content Type (data, maps; models) or a specific REA (e.g., Colorado Plateau REA).



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## Search

Text:

*Example: nwp AND sage grouse*



FILTER CONTENT TYPE

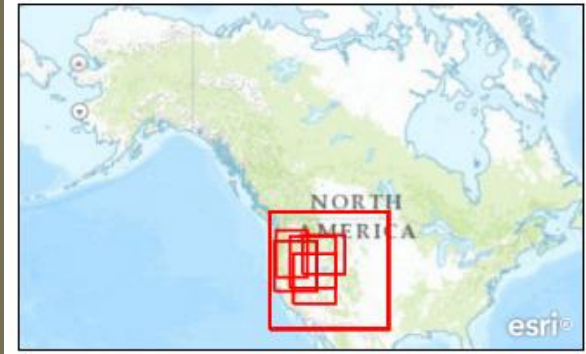
[Advanced Search](#) [Clear](#)

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### WHERE

- Anywhere
- Intersecting
- Fully within



### My Saved Searches

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- Static Map

Results 1-10 of 107 record(s) [1](#) [2](#) [3](#) [4](#) [5](#) [>](#) [Last](#)

- [Expand results](#) [Zoom To Results](#) [Zoom To Searched Area](#)
- [DOI RFSO Secretarial Order 3336](#)**  
This Order sets forth enhanced policies and strategies for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the West.  
[Open](#) [Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- [USDA Sagebrush Resistance and Resilience Concepts RMRS-GTR-326 \(FIAT\)](#)**  
This Report provides a strategic approach for conservation of sagebrush ecosystems and Greater Sage-Grouse (sage-grouse) that focuses specifically on habitat threats caused by invasive annual grasses and altered fire regimes. It uses information on facto...  
[Open](#) [Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- [National Cohesive Wildland Fire Management Strategy Website](#)**  
Website for land managers of government forests and rangelands to reference the national cohesive wildland fire management strategies.  
[Open](#) [Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- [SO 3336 - The Initial Report](#)**  
A Strategic Plan for Addressing Rangeland Fire Prevention, Management, and Restoration in 2015  
[Open](#) [Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- [An Integrated Rangeland Fire Management Strategy](#)**  
Final Report to the Secretary of the Interior, SO 3336  
[Open](#) [Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- [BLM FIAT Central Oregon Greater Sage-Grouse Wildfire, Invasive Annual Grasses, and Conifer Expansion Assessment \(COR\)](#)**  
The FIAT assessments were developed using methods described in the FIAT Report (Fire and Invasive Assessment Team June 2014). This process is designed to identify strategies that ameliorate threats to Greater Sage-Grouse (Centrocercus urophasianus) and th...



# Landscape Approach Data Portal

Data, Maps, and Models from BLM's Landscape Approach Initiatives



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## Browse

To browse data, select an item from the Catalog tree. To filter the browse results, enter a keyword in the text box and click Filter.

- [-] Catalog
  - [+] Filter Content Type
  - [+] ISO Topic Category
  - [+] BLM Keywords
  - [+] Rapid Ecoregional Assessments (REAs)
  - [+] Fire and Invasives Assessments (FIAT)
  - [+] Greater Sage-Grouse (GRSG)
  - [+] Assessment, Inventory and Monitoring (AIM)
  - [-] Secretarial Order 3336
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    - [+] Fire and Fuels
    - [+] Invasive Species
    - [+] Other Wildlife
    - [+] Restoration
    - [+] Sage-Grouse
    - [+] Topography
    - [+] Vegetation



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Text:  [Filter](#) [Clear](#) 84 results

Showing 1-10 [1](#) [2](#) [3](#) [4](#) [5](#) [>](#) [Last](#)

- National Cohesive Wildland Fire Management Strategy Website**  
Website for land managers of government forests and rangelands to reference the national cohesive wildland fire management strategies.  
[Open](#) [Preview](#) [Details](#) [Metadata](#)
- DOI RFSO Secretarial Order 3336**  
This Order sets forth enhanced policies and strategies for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the West.  
[Open](#) [Preview](#) [Details](#) [Metadata](#)
- SO 3336 - The Initial Report**  
A Strategic Plan for Addressing Rangeland Fire Prevention, Management, and Restoration in 2015  
[Open](#) [Preview](#) [Details](#) [Metadata](#)
- An Integrated Rangeland Fire Management Strategy**  
Final Report to the Secretary of the Interior, SO 3336  
[Open](#) [Preview](#) [Details](#) [Metadata](#)
- Cheatgrass Dieoffs**  
We mapped eleven years of cheatgrass dieoff in the northern Great Basin. If we estimated that a dieoff occurred in a pixel anytime during that eleven year period, then the pixel was coded as dieoff. If no dieoff occurred, the pixel was coded as a non dieo...  
[Open](#) [Preview](#) [Details](#) [Metadata](#)



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## Home

The **BLM's Landscape Approach reports** produced by BLM's landscape

- Rapid Ecoregional Assessment
- Assessment Inventory & Monitoring
- Fire & Invasives Assessment
- Sage-Grouse Initiative

To learn more about each initiative or the [tabs above](#). You can find products

On the Search page, enter any keywords

- Initiative — such as *AIM*, *FIAT*, *Sage-Grouse*
- Subject — such as *sage-grouse*, *fire*, *invasives*
- Place — such as *CO*, *North*

You can conduct [advanced searches](#) on the Search page such as filtering by content type (e.g., data, map, model) or geographic extent. You can even [search other data portals](#) simultaneously, including USGS Science Base, Data.gov, and ArcGIS Online. Click on this [How To...](#) link for instructions.

On the Browse page, simply click each header to expand the various categories. For example, you can browse by Content Type (data, maps, models) or a specific REA (e.g., Colorado Plateau REA).

**Public!**  
[www.landscape.blm.gov/geoportal](http://www.landscape.blm.gov/geoportal)

Rapid Ecoregional Assessments (REAs)



Assessment, Inventory & Monitoring (AIM)



Fire & Invasives Assessment Tool (FIAT)



Sage-Grouse





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## Search

Text:   
*Example: nwp AND sage grouse*

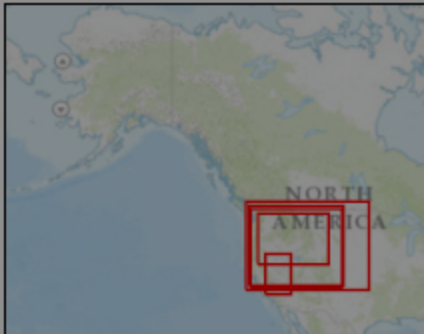
### FILTER CONTENT TYPE

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**Records shown from: This Site**  
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### WHERE

Anywhere  Intersecting  Fully within



Portal "Points" to Data  
(does not "Store" data)

**Sharing is Easy!**



### BLM GRSG Sagebrush Focal Areas (SFA)

This dataset is a modified version of the FWS developed data depicting "Highly Important Landscapes", as outlined in Memorandum FWS/AES/058711 and provided to the Wildlife Habitat Spatial analysis Lab on October 29th 2014. Other names and acronyms used to...

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## Search

Text:    
*Example: nwp AND sage grouse*

FILTER CONTENT TYPE

Advanced Search Clear

WHERE  
 Anywhere  Interactive  Full width



BLM Data

USGS Data  
ScienceBase

### My Saved Searches

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Results 1-6 of 6 record(s)

Expand results [Zoom To Results](#) [Zoom To Searched Area](#)

- BLM GRSG EIS Boundaries - Use For Analysis (polygon)**  
 This feature class represents the product of merge and dissolve operations in ArcGIS with the inputs being the individually submitted EIS boundary datasets. EIS boundaries were developed by each individual EIS in coordination with the Division of Decisio...  
[Open Website](#) [Details](#) [Metadata](#) [Download](#) [Zoom To](#)
- USGS Governmental Unit Boundaries Overlay Map Service from The National Map**  
 The USGS Governmental Unit Boundaries service from The National Map (TNM) represents major civil areas for the Nation, including States or Territories, counties (or equivalents), Federal and Native American areas, congressional districts, minor civil divi...  
[Open Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- Management Categories**  
 Sage-Grouse habitat areas divided into proposed management categories within Nevada and California project study boundaries. MANAGEMENT CATEGORY DETERMINATION The process for category determination was directed by the Nevada Sagebrush Ecosystem Techni...  
[Open Preview](#) [Details](#) [Metadata](#) [Zoom To](#)
- BLM GRSG Proposed Priority Habitat Management Areas (PHMA)**  
 This dataset represents the consolidated submissions of Proposed GRSG habitat management areas (Priority only) from each individual BLM EIS for Tier II analysis. These data were submitted to the BLM's Wildlife Habitat Spatial Analysis Lab between Septembe...  
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- BLM GRSG Proposed General Habitat Management Areas (GHMA)**  
 This dataset represents the consolidated submissions of Proposed GRSG habitat management areas (General and Important only) from each individual BLM EIS for Tier II analysis. These data were submitted to the BLM's Wildlife Habitat Spatial Analysis Lab bet...  
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- BLM GRSG Sagebrush Focal Areas (SFA)**  
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## Search

Text:

*Example: nwp AND sage grouse*

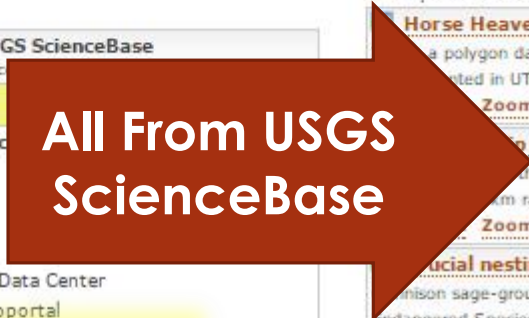
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**Records shown from: USGS ScienceBase**  
Click here to select different site or...

**USGS ScienceBase**

Select sites where the search results are displayed. You may select up to 5 sites.

- This Site
- ArcGIS.com
- Data.gov
- National Snow and Ice Data Center
- Oregon State Office Geoportals
- USGS ScienceBase**



All From USGS ScienceBase

WHERE  Anywhere  Intersecting  Fully within



Downloadable Data | Document | Model | Live Map Service | Static Map

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[Expand results](#) [Zoom To Results](#) [Zoom To Searched Area](#)

**Horse Heaven Hills Biotic Crusts - Sagebrush Cover**  
This is a polygon data set representing sage brush cover in Horse Heaven Hills study area. Data were developed from aerial photography and are presented in UTM coordinates; Zone 11 NAD27  
[Metadata](#) [Zoom To](#)

**Relationship between % sagebrush cover and elevation, precipitation, water capacity and depth to rock**  
This document describes the relationship between the percent of land dominated by sagebrush and elevation, precipitation, water capacity and depth to rock within a 100 m radius. It is a portion of chapter 5: Sagebrush Ecosystems: Dynamics of Primary Sagebrush Habitats...  
[Metadata](#) [Zoom To](#)

**Identifying a potential nesting habitat for gunnison sage-grouse: A spatially explicit hierarchical approach**  
Gunnison sage-grouse (*Centrocercus minimus*) is a species of special concern and is currently considered a candidate species under the Endangered Species Act. Careful management is therefore required to ensure that suitable habitat is maintained, particularly ...  
[Metadata](#) [Zoom To](#)

**Range-wide patterns of greater sage-grouse persistence**  
Aim: Greater sage-grouse (*Centrocercus urophasianus*), a shrub-steppe obligate species of western North America, currently occupies only half its historical range. Here we examine how broad-scale, long-term trends in landscape condition have affected range...  
[Metadata](#) [Zoom To](#)

**Pre and Post-Settlement Fire Regimes in Mountain Big Sagebrush Steppe and Aspen - Fire Scar Data**  
Fire scar dates from nine sample locations in southeast Oregon and northeast California are included in tables in the project final report. Scar dates range from 1467 to 1950.  
[Metadata](#) [Zoom To](#)

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- Secretarial Order 3336
- How To

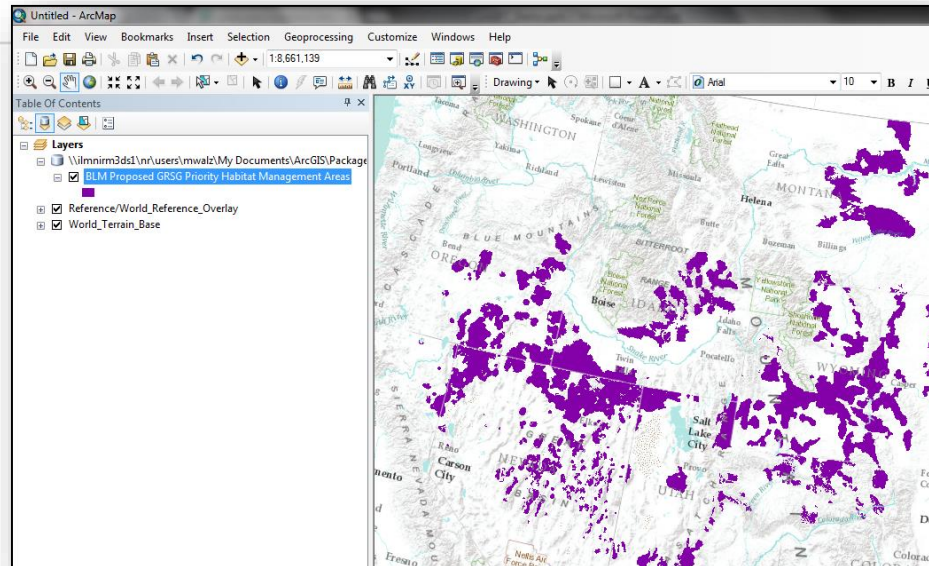
## Downloadable Data

### **BLM GRSG Proposed Priority Habitat Management Areas (PHMA)**

This dataset represents the consolidated submissions of Proposed GRSG habitat management areas (Priority only) from each individual BLM EIS for Tier II analysis. These data were submitted to the BLM's Wildlife Habitat Spatial Analysis Lab between September...



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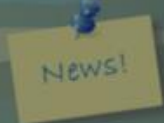






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## Live Map Services

### **BLM FIAT Sagebrush Habitat at Risk of Conifer Expansion**

A 30 meter integer grid derived from USGS GAP data published in 2010 of sagebrush land cover within 120 meters of conifer land cover. It is one of several inputs used in the BLM FIAT analysis completed March 2015. FIAT was developed using a process desig...

- [Open](#)
- [Preview](#)
- [Globe \(.kml\)](#)
- [ArcGIS \(.nmf\)](#)
- [ArcGIS \(.lyr\)](#)
- [Add To Map](#)
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ArcGIS - My Map

Details | Basemap | Print | Measure

Contents

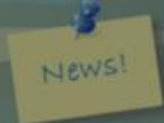
- BLM FIAT Sagebrush Habitat at Risk of Conifer Expansion
  - BLM FIAT Sagebrush Habitat at Risk of Conifer Expansion 2015 Integer Raster
  - Sagebrush Land Cover at Risk of Conifer Expansion
- Topographic



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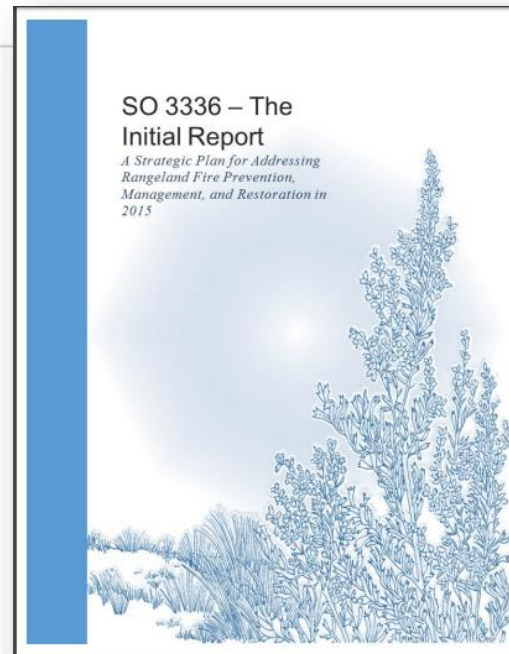
[How To](#)

## Documents

### [DOI RFSO Secretarial Order 3336](#)

This Order sets forth enhanced policies and strategies for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the West.

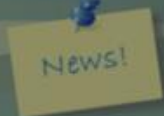
[Open](#) [Preview](#) [Details](#) [Metadata](#) [Zoom To](#)





# Landscape Approach Data Portal

Data, Maps, and Models from BLM's Landscape Approach Initiatives



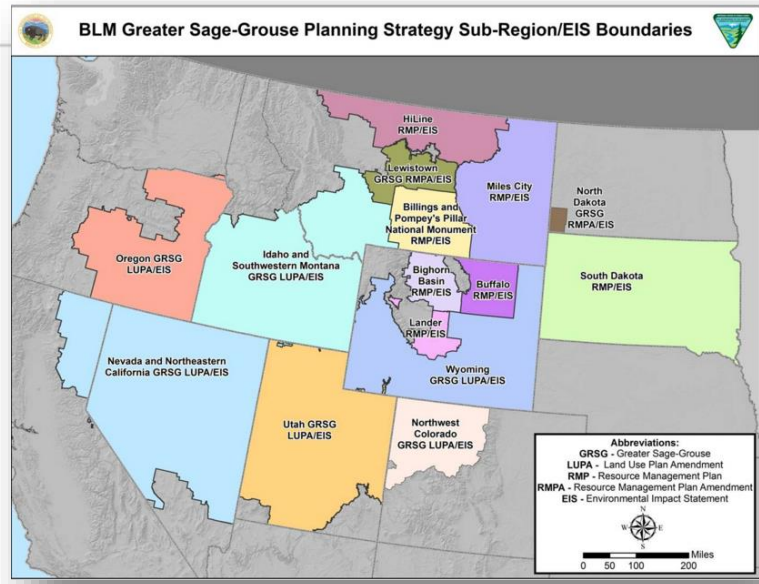
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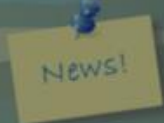
## Static Maps (pdf)

### **BLM GRSG Greater Sage-Grouse Planning Strategy Sub-Region/EIS Boundaries**

This map illustrates the planning area boundaries for each sub-region/EIS.

- [Open](#)
- [Preview](#)
- [Details](#)
- [Metadata](#)
- [Zoom To](#)



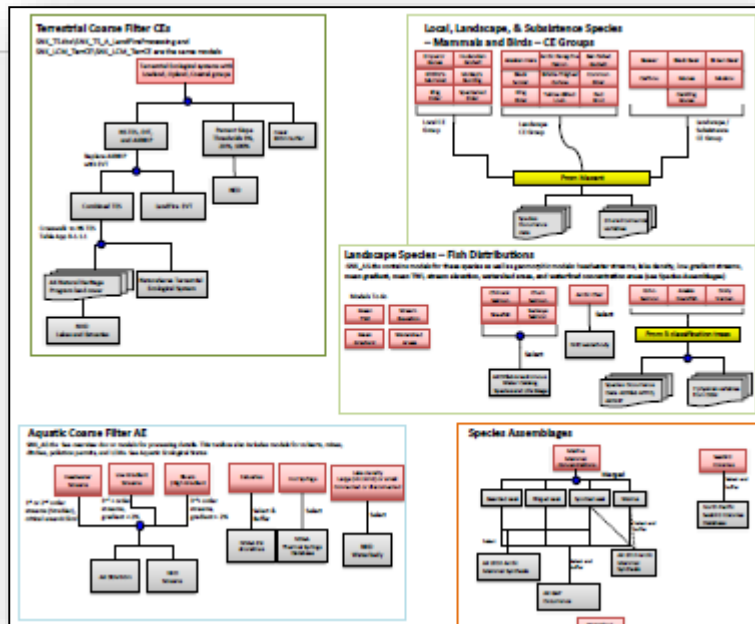


## Models (Scripts, Toolboxes, etc.)

### [REa SNK Models Overview](#)

Overview diagram and document providing text descriptions and graphical overview of the entire geoprocessing modeling environment/setting. This overview is also available within each models package as a guide. Documents available: SNK Geospatial Model Ove...

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# Landscape Approach Data Portal

Data, Maps, and Models from BLM's Landscape Approach Initiatives



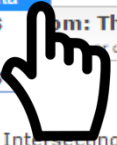
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## Search

Text:    
*Example: nwp AND sage grouse*

### FILTER CONTENT TYPE

- Downloadable Data
- Any
- Documents
- Downloadable Data
- Live Map Services
- Models
- Static Map Images



### WHERE

- Anywhere
- Intersecting
- Fully within



- Downloadable Data
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- Live Map Service
- Static Map

Results 1-8 of 8 record(s)

- Expand results [Zoom To Results](#) [Zoom To Searched Area](#)
- BLM GRSG Sagebrush Focal Areas (SFA)**  
 This dataset is a modified version of the FWS developed data depicting "Highly Important Landscapes", as outlined in Memorandum FWS/AES/058711 and provided to the Wildlife Habitat Spatial analysis Lab on October 29th 2014. Other names and acronyms used to...  
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- Herbaceous Percent - Provisional Remote Sensing Shrub/Grass NLCD Products for the North Central Great Basin**  
 Accurate and consistent estimates of shrubland ecosystem components are crucial to a better understanding of ecosystem conditions in arid and semiarid lands. The USGS NLCD team in collaboration with the BLM is producing the most comprehensive remote sensi...  
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- BLM AIM TerrADat RemoteSensing point**  
 This feature class includes monitoring data collected nationally to understand the status, condition, and trend of resources on BLM lands. Data are collected in accordance with the BLM Assessment, Inventory, and Monitoring (AIM) Strategy. The AIM Strategy...  
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- BLM GRSG CED: Conservation Efforts State Data (polygon)**  
 This product contains Bureau of Land Management (BLM) conservation efforts completed from 2009 - 2014 for the benefit of the Greater Sage-Grouse (GRSG). The conservation efforts data included in this product are the state polygon data only.  
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- BLM GRSG CED: Conservation Efforts National Plan Data (polygon)**  
 This product contains Bureau of Land Management (BLM) conservation efforts completed from 2009 - 2014 for the benefit of the Greater Sage-Grouse (GRSG). The conservation efforts data included in this product are the national plan polygon data only.  
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- BLM GRSG CED: Conservation Efforts State Data (point)**  
 This product contains Bureau of Land Management (BLM) conservation efforts completed from 2009 - 2014 for the benefit of the Greater Sage-Grouse (GRSG).  
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# Landscape Approach Data Portal

Data, Maps, and Models from BLM's Landscape Approach Initiatives

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## Home

The **BLM's Landscape Approach** Data Portal is a one-stop source for **geospatial data, maps, models and reports** produced by BLM's landscape initiatives including the:

- Rapid Ecoregional Assessments (REAs)
- Assessment Inventory & Monitoring (AIM) program
- Fire & Invasives Assessment (FIAT) program, and
- Sage-Grouse Initiative

To learn more about each initiative and the products that are available for them, click on the [images to the right](#) or the [tabs above](#). You can find products from all of these initiatives by using the [Search or Browse tabs](#) above.

On the Search page, enter any keyword(s) in the Text box or search by:

- Initiative — such as *AIM, REA, FIAT, or sage-grouse*
- Subject — such as *sage-grouse, soils, intactness*
- Place — such as *CO, Northern Great Basin*

You can conduct [advanced searches](#) on the Search page such as filtering by content type (e.g., data, map, model) or geographic extent. You can even [search other data portals](#) simultaneously, including USGS Science Base, Data.gov, and ArcGIS Online. Click on this [How To...](#) link for instructions.

On the Browse page, simply click each header to expand the various categories. For example, you can browse by Content Type (data, maps, models) or a specific REA (e.g., Colorado Plateau REA).

- [Rapid Ecoregional Assessments \(REAs\)](#)
- [Assessment, Inventory & Monitoring \(AIM\)](#)
- [Fire & Invasives Assessment Tool \(FIAT\)](#)
- [Sage-Grouse](#)



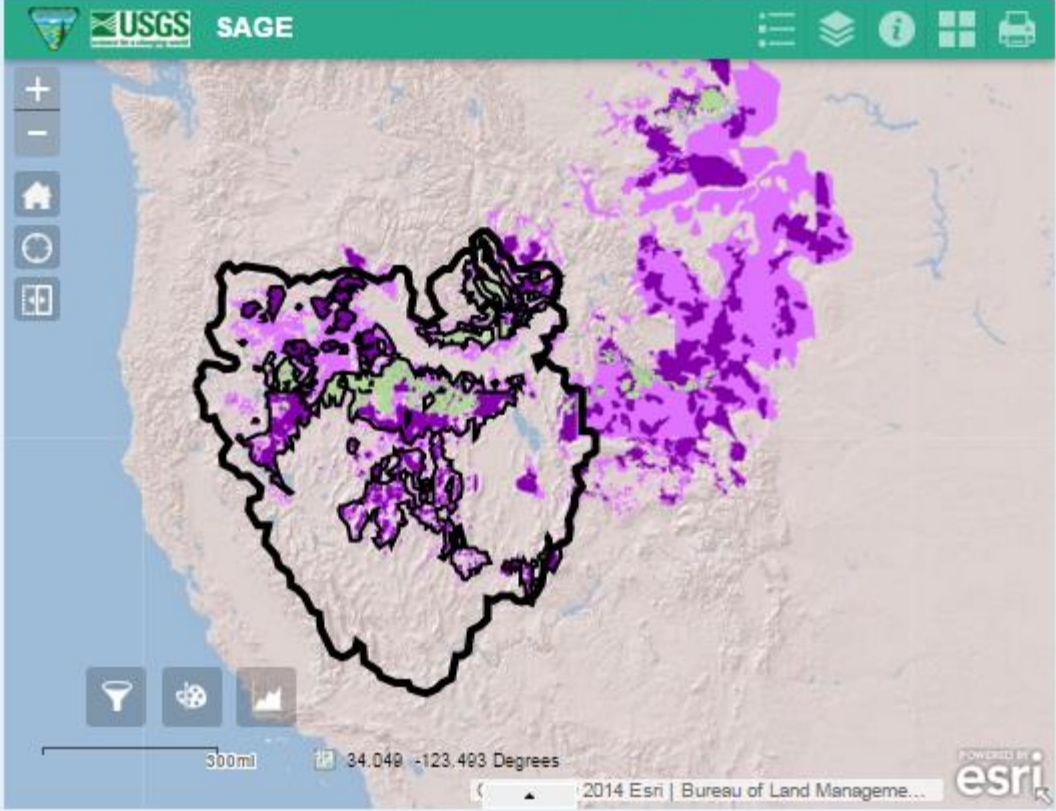
## Integrated Rangeland Fire Management Strategy Geospatial Framework (Secretarial Order 3336)



The **Integrated Rangeland Fire Management Strategy** sets in motion actions to enhance the protection, conservation, and restoration of the sagebrush-steppe ecosystem, and to address important public safety, economic, cultural, and social concerns. An Integrated Rangeland Fire Management Strategy (the Strategy) is intended to improve the efficiency and efficacy of actions to address rangeland fire, to better prevent and suppress rangeland fire, and improve efforts to restore fire-impacted landscapes. For this reason, the Strategy relies, in part, on the Fire and Invasive Assessment Tool (FIAT) to assess the major threats to the sagebrush-steppe in order to conserve the greater sage-grouse and its habitat. "Resilience" and "resistance" to rangeland fire is the basis of FIAT.

The published Secretarial Order 3336 reports, related data layers, and maps can be found in this portal. Use the search box to the right to find SO3336 products or use the keyword "SO3336" on the Search All or Browse All pages list above.

### Sagebrush Assessment and Geospatial Evaluation (SAGE)



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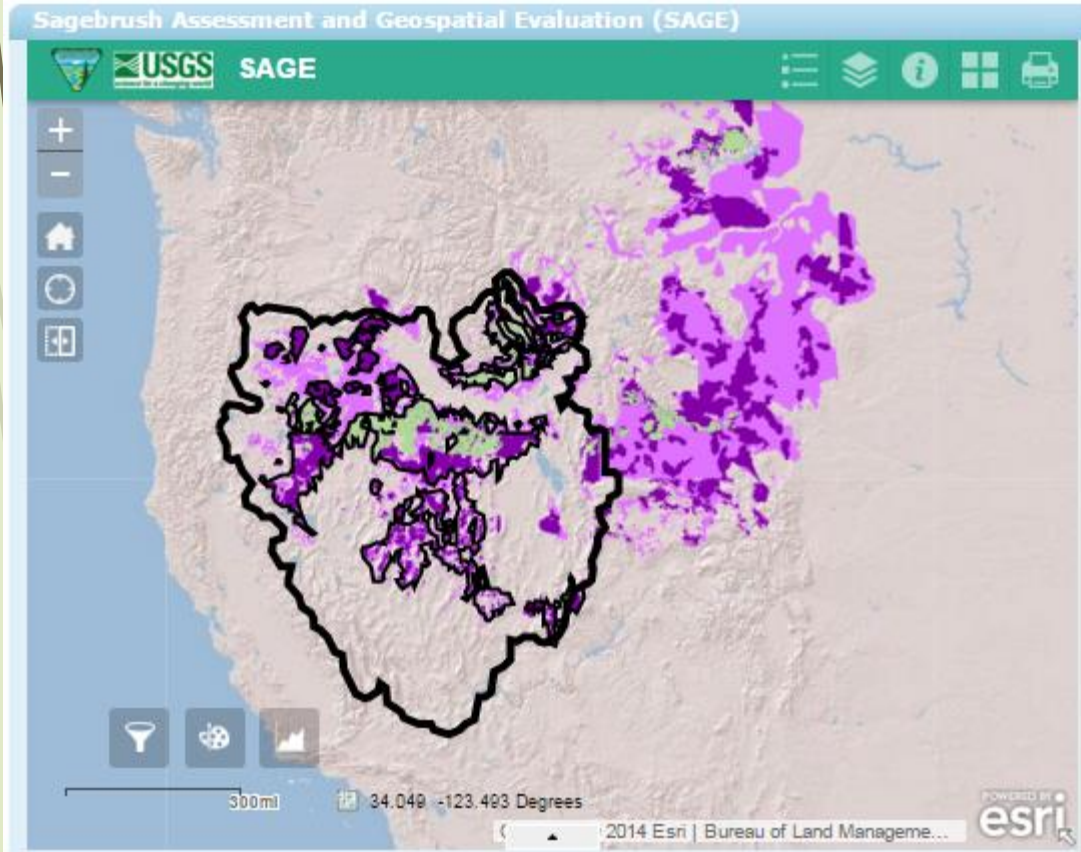
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## Integrated Rangeland Fire Management Strategy Geospatial Framework (Secretarial Order 3336)

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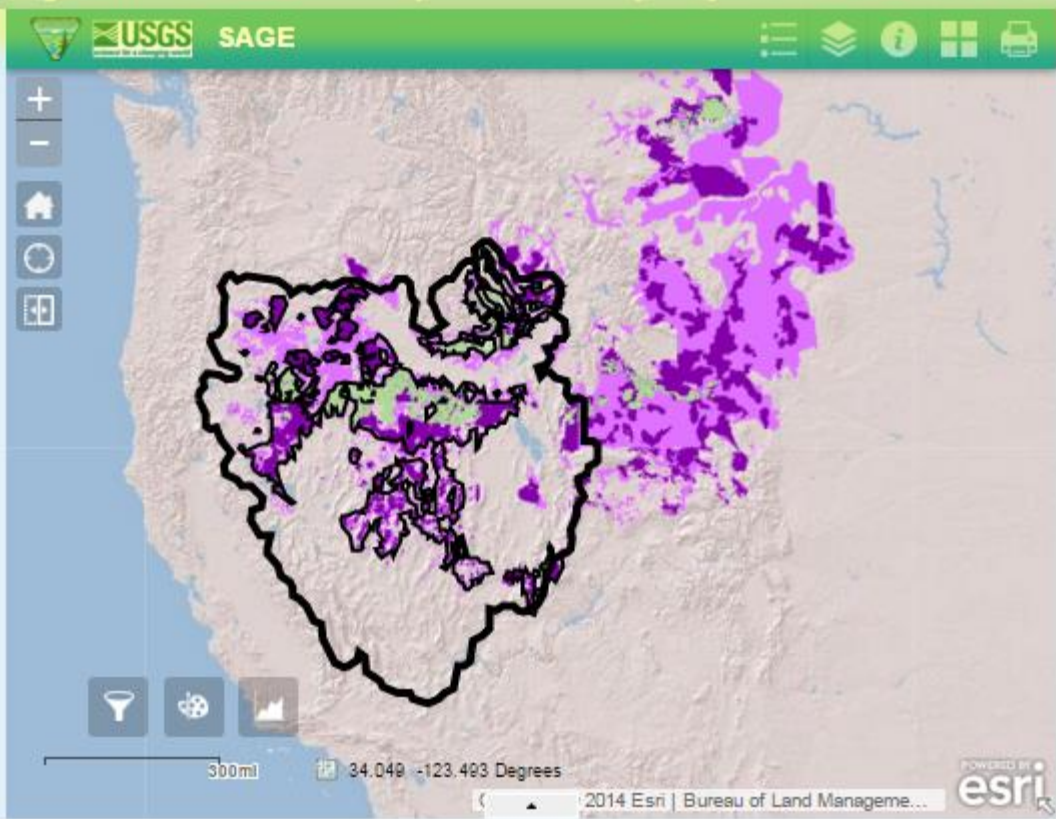


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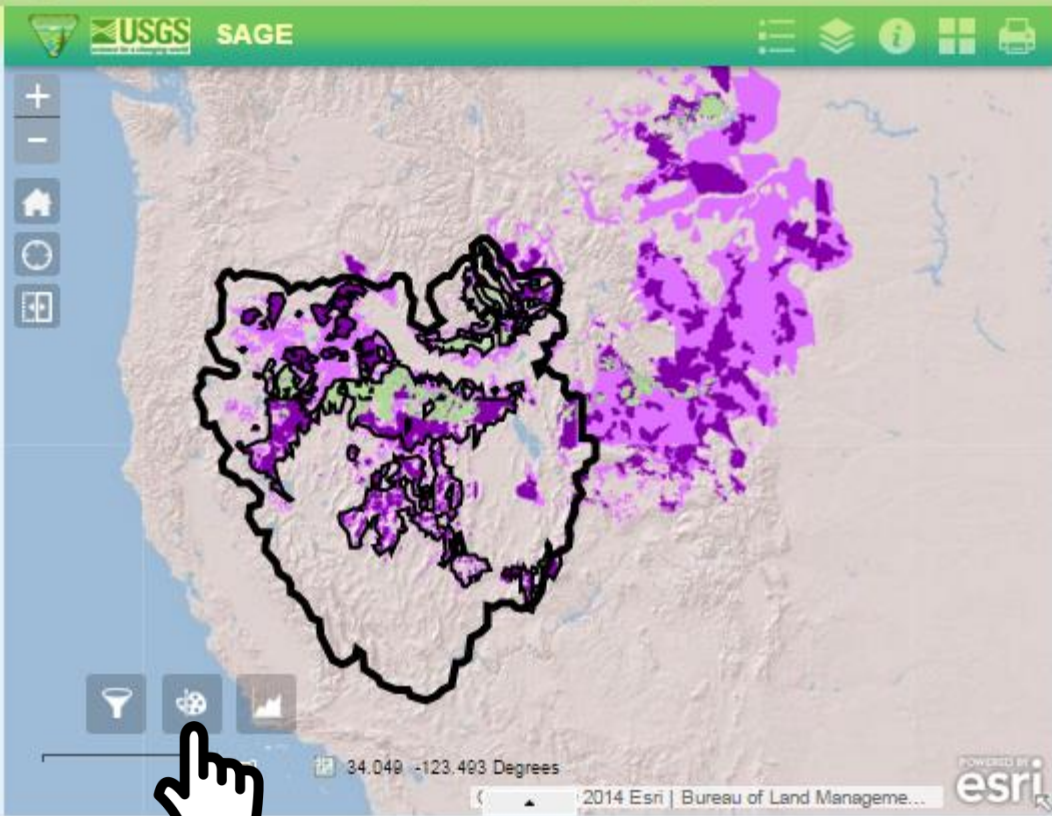


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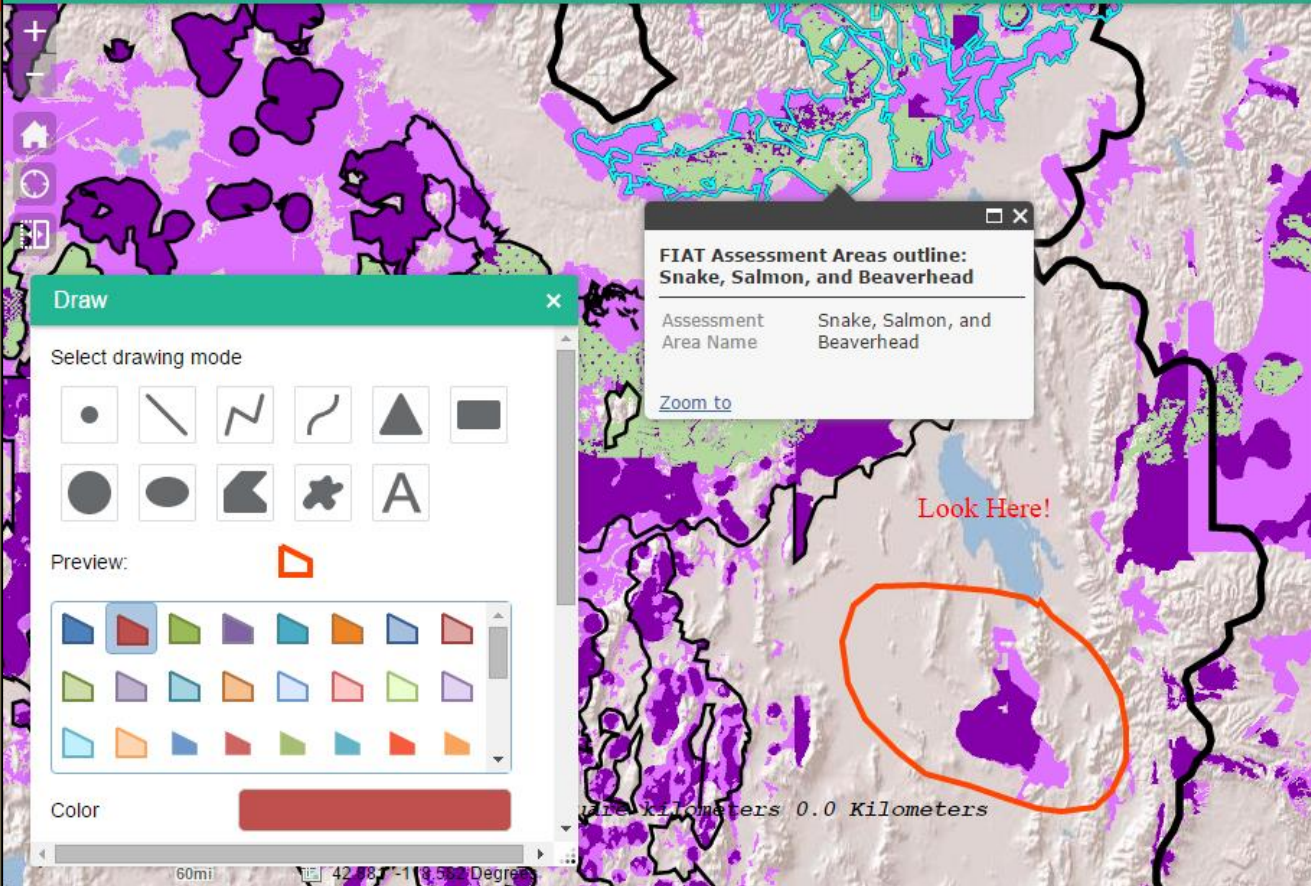
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**FIAT Assessment Areas outline:  
Snake, Salmon, and Beaverhead**

Assessment Area Name	Snake, Salmon, and Beaverhead
<a href="#">Zoom to</a>	

**Draw**

Select drawing mode

Preview:

Color

**Layer List**

- Operational Layers
- Great Basin (Coates et al 2015)
  - FIAT Assessment Areas
  - BLM Greater Sage-Grouse (GRSG) Layers
  - BLM Sagebrush Focal Areas
  - BLM Proposed GRSG General Habitat Management Areas
  - BLM Proposed GRSG Priority Habitat Management Areas

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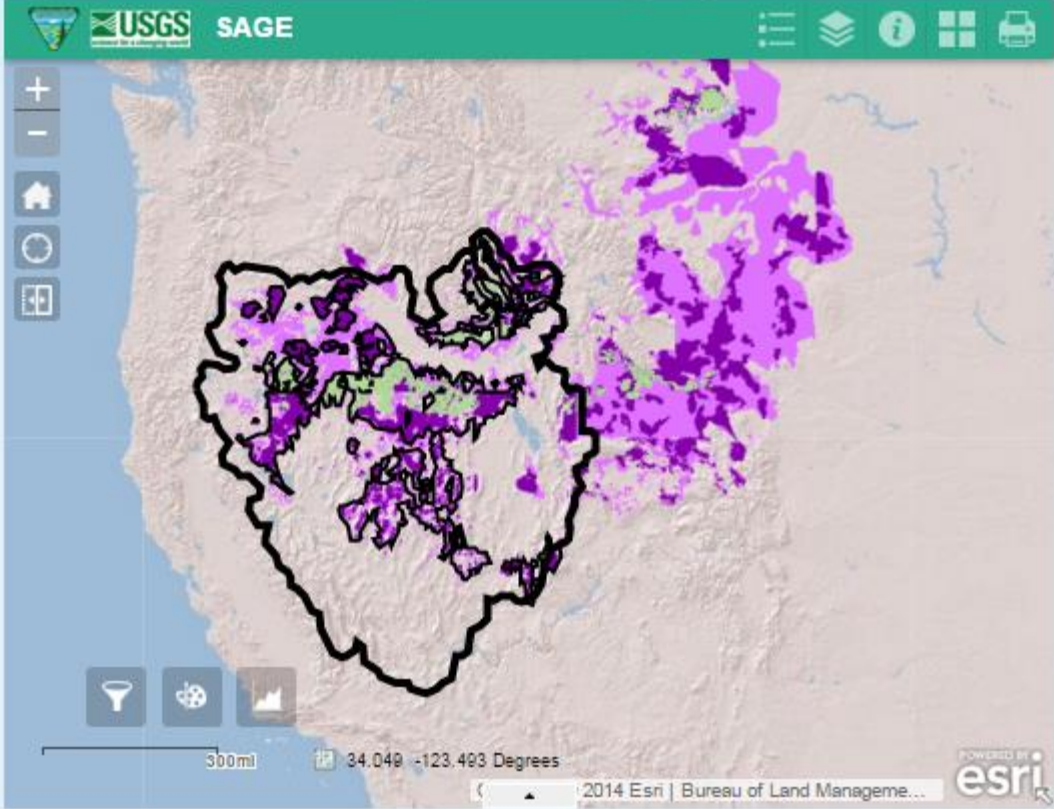


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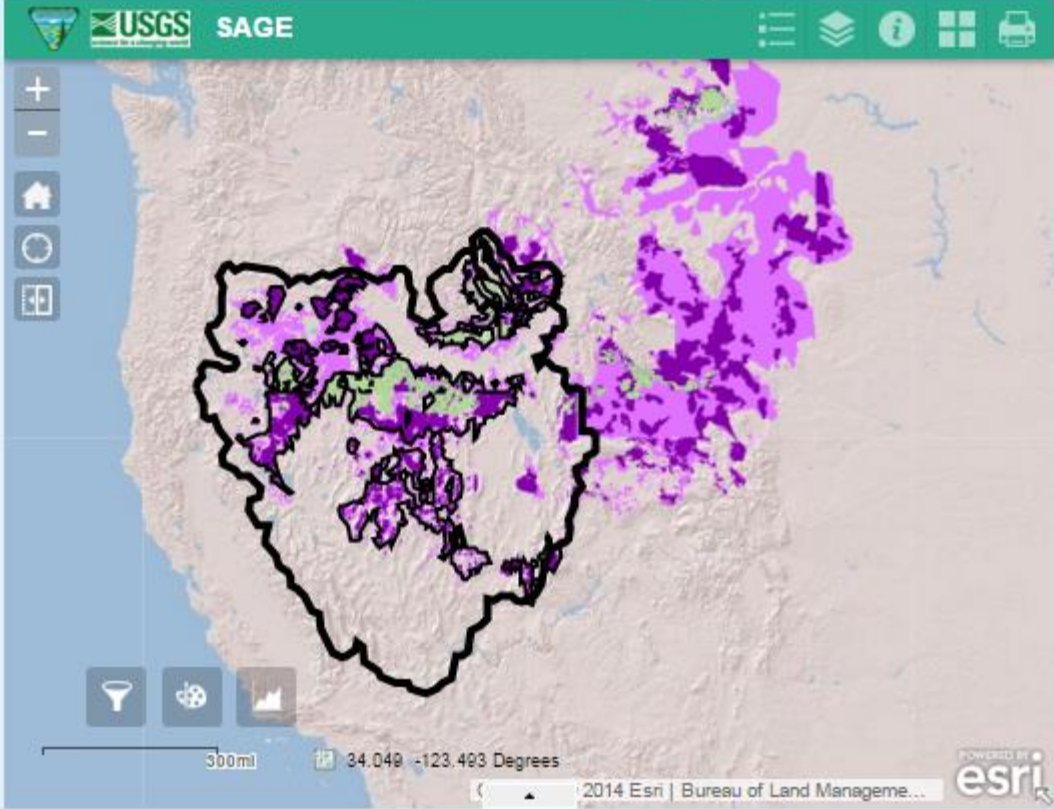


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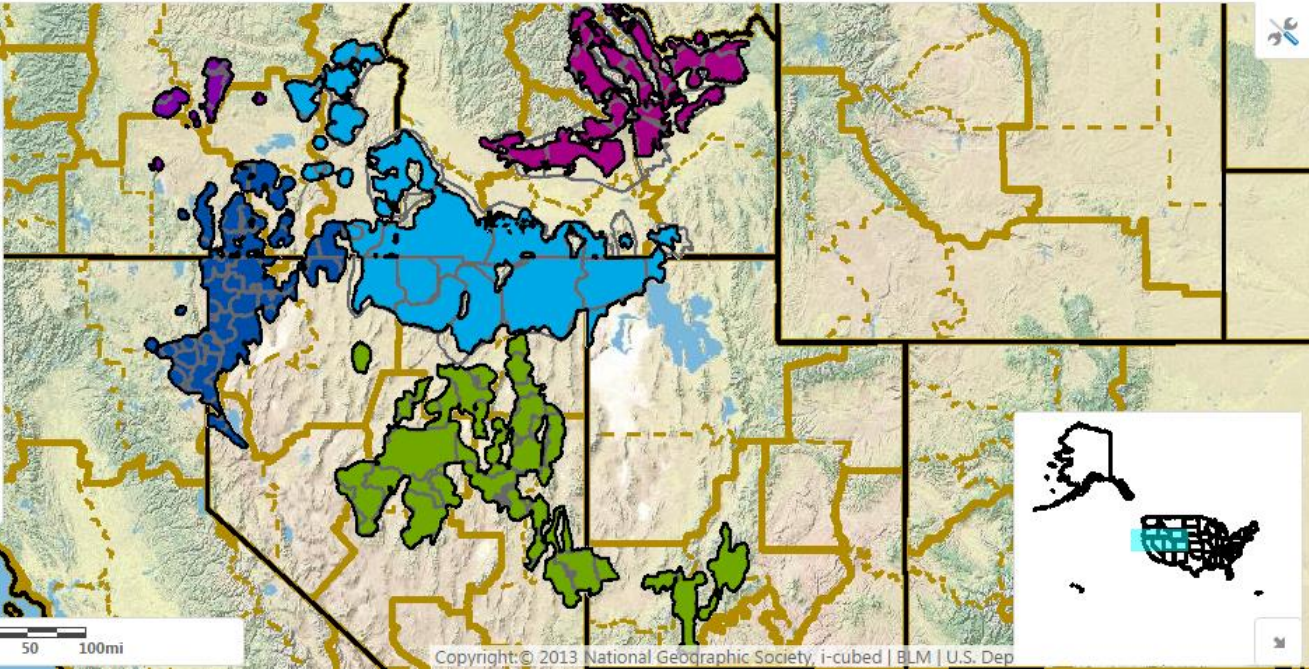
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## USGS Integrated Rangeland Fire Management Strategy Geospatial Framework (Secretarial Order 3336)

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[mwalz@blm.gov](mailto:mwalz@blm.gov)

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